

REPEATER JOURNAL

May, 1984

125

CVRA - South Eastern Repeater Association, Inc.



**North & South Carolina
Hard Hit by Tornadoes
Amateurs Come With Help!**
See Stories Inside.

Also This Issue:

- CVRA-SERA Bandplans
- New Updated Repeater Index
- Coordination Policy & Guidelines

Representing UHF-VHF Interests Throughout Virginia,
North Carolina, South Carolina, Tennessee & West Virginia

FM-2033

2m C-MOS MICROPROCESSOR CONTROLLED
DIGITAL SYNTHESIZER FM TRANSCEIVER

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Exclusive KDK 6 in 1 control is now joined by 6 exciting new KDK features:

NEW! % Soft Orange background Liquid Crystal Display (LCD) for direct sunlight viewing plus lighting for night viewing.

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NEW! % Frequency coverage of 142.000 to 149.995 MHz for M.A.R.S. and C.A.P. usage.

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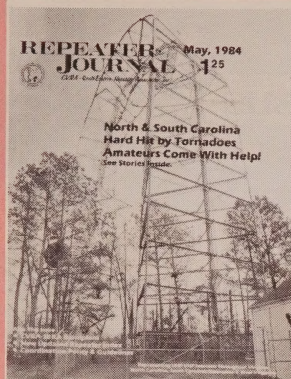
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ON OUR COVER

Tornadoes swept through Northern South Carolina and Eastern North Carolina March 28 during the night, wreaking havoc on everything in their range. Our cover photo is the remnants of a microwave tower after taking the brunt force of a twister. Amateurs flocked to the affected areas and assisted in communications and the passing of traffic. See our Special story this issue. Cover Photo ctsy: The Sentinel Newspapers, Winston-Salem, N.C.

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REPEATER JOURNAL



CVRA - South Eastern Repeater Association, Inc.



Editorial Comment

MAY, JUNE, JULY
VOLUME 13, NO. 2
ORGANIZED IN 1971
"IN OUR 13th YEAR!"

They Went Because They Wanted To . . .

When the tornado devastation ended last March, small towns in North and South Carolina were ripped apart by Mother Nature. Strangers came in to help.

But among all these people who went in, mainly because it was their job, or because they were required to . . . there were several dozen who went in because they wanted to.

They were Amateur Radio Operators!

With the many phone conversations I had gathering this story, TSgt. Terry L. Shay, Public Affairs Officer from Seymour Johnson AFB summed it best:

"I think ham operators must be the best people in the world." "I've seen them come in here, some even spending their vacations . . . work for hours, go without sleep, food or relief, which is unbelievable, and keep working to help people." "And then when their job is done, they get up, and drive away, without waiting for thanks or recognition."

I think T-Sgt. Shay is absolutely correct. We have men and women who spent days on-the-scene in the Tornado affected areas. Some were featured on TV, some got little blurbs in the local newspapers, but it was generally the Red Cross, the Air Force and the National Guard who made headlines.

Why . . . even our Honorable Governor James Hunt took a few seconds from his "busy" schedule to send a short cryptic message to us which read: "Your efforts and accomplishments in the disaster areas are appreciated, keep up the good work." And that's all there was. I'm not even sure the South Carolina hams ever heard from their governor.

Of course, we hams are accustomed to this by now. Who cares how much glory we get on the outside . . . we know we did a great job. We know we provided life-saving emergency communications. We know we made the job SO much easier for the disaster crews, the Red Cross, the Air Force and the National Guard. We know many of us were first on the scene. We know we kept the various National Weather Bureaus advised of conditions before, during and after the tornadoes. We know we made some concerned relative outside the area happy by finding out their kin was safe and lived through the storm. We know we stayed away from our families for days to help out our fellow man, at our own expense. We know we provided motor homes, radio gear, bought gas, food and supplies to keep ourselves ready to go. We know who spent their vacation, sitting in the middle of devastation waiting to be of any assistance necessary. We know how many Amateur repeaters were tied up for days, to pass traffic to help. We know how many cried inside as we surveyed the devastation of our neighbors home.

If nothing else comes from this "exercise" perhaps the Governor of the States of North Carolina and South Carolina, know that Amateurs CAN do the job of communicating, and we are ready, as many as it will take, to come and stay and provide help as necessary. They now know who to turn to in times of Emergency when communications are essential. Our communications has no red tape, never overloaded and as formal as it need be to get the job done. This is part of our job as Amateurs and you two Honorable Governors of the Carolinas should remember next time, and see that your aids are well informed, because Amateurs make your job a little easier, and you certainly can't complain about the expense. All you have to do is ask!

To the hundreds of Amateurs who participated, to the hundreds more who were able to keep their finger off the push-to-talk button and allow the communications flow without interference and unnecessary competition, we salute you, we thank you.

You have done a great service for the people of Northern South Carolina and Eastern North Carolina. You will be remembered by all who met you as kind, giving and sensitive people who cared . . .

I wish I could shake each of your hands and personally thank you. This is your story, and your thanks. Unfortunately this is probably all you will get!

— Wayne C. Williams, Editor



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About CVRA-SERA . . .

CVRA-Southeastern Repeater Association, Inc. is one of the largest Repeater Organizations in the United States. In our 13th year of operation, the Association is positive proof that coordination efforts have paid off in the Districts it serves. Two of our Districts are 11th and 13th in the Nation in numbers of Amateur repeaters. We shall strive to continue to keep our area interference free with cooperation and coordination efforts of our Amateur repeater owners and CVRA-SERA as in the past 12 years.

REPEATER JOURNAL

MAY, JUNE, JULY 1984

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About the Repeater Journal . . .

The CVRA-SERA REPEATER JOURNAL is published quarterly, during the months of February, May, August and November of each year and mailed free to members of CVRA-Southeastern Repeater Association, Inc., a non-profit coordinating organization made up of repeater owners and users. Permission is granted for use of material contained in the REPEATER JOURNAL, provided proper credit is given. The REPEATER JOURNAL Editor will swap newsletters with other Repeater Councils and News organizations on request. The REPEATER JOURNAL press run is 5,500 copies with circulation membership in excess of 3,900 and is entered as Third Class Mail at the Post Office in Greensboro, N.C. REPEATER JOURNAL copies may also be obtained at most area hamfests for \$1.25 per copy. All news and Newsletter exchanges should be mailed to the Editor and Publisher, Wayne C. Williams, K4MOB, 600 Lakedale Road, Colfax, N.C. 27235.

About Associate Membership

Repeater users and Amateurs are invited to join CVRA-SERA as Associate Members. A membership fee of \$4.00 per year will enable members to support the organization and receive the "Repeater Journal". Note: Associate Membership deadlines are on the 15th of the month preceding months of publication - Jan. 15, April 15, July 15 and October 15. Persons joining or renewing their membership must have their application into the Greensboro Post Office Box by these deadlines to receive the next upcoming Repeater Journal in February, May, August and November. Memberships received after any deadline will not receive the next to be published Journal, but instead will receive the forthcoming issue the next quarter. Memberships received at hamfests will receive a current "Repeater Journal" as long as supplies are available and the next regularly scheduled issue through the mail.

About Full Repeater Membership . . .

Officers and Directors are elected from members of CVRA-SERA Full Membership. Any repeater owner or club may join our organization as a Full Member by filling out an application and submitting it with \$8.00 annual membership fee. Two representatives are named for each membership and each receive the "Repeater Journal." The Full Member repeater is appropriately recognized as a full member repeater in our repeater index in the Journal. Full Memberships all expire on December 31 each calendar year.

33 Tornadoes Crash Through Carolinas

The night of March 28 will live vividly in the minds of many people as a night of nightmares, tornadoes ripping through homes, trees, businesses and scores of buildings.

Amateur radio operators in the Carolinas were alerted early Wednesday afternoon as the National Weather Service set up a Hurricane Watch until 11:00 p.m. in most areas.

Many area repeaters went into Severe Weather Net conditions waiting for what was to come. But no one was quite ready for what actually came. Tornadoes spawned across northern South Carolina and into Eastern North Carolina by the dozens.

Several small towns in South Carolina were badly damaged. One town virtually destroyed and several others heavily damaged in North Carolina before the night was over.

The National Weather Service said a big Spring Storm

developed over the Gulf Coast and moved northeast, great quantities of wet warm air brought in from the Gulf, collided with dry, cold air drawn down from the north by the same cyclonic system. The warm air being lighter, pushed over the wedge of cold air, and as it rose, its heavy burden of moisture condensed into clouds and deluges of snow and rain.

Condensation of the rain released a tremendous amount of energy in the form of latent heat, greatly intensifying the air motions, resulting in a southwest to northeast squall line of severe storms which crossed into the Carolinas. Vortices within them evolved into at least 33 tornadoes.

The National Weather Service said an unusually strong jet stream high overhead added to the severity of the storms and caused more room for further intensive updrafts. These vertical motions are what cause tornadoes.

Storm Off Gulf Coast Cause for Tornadoes

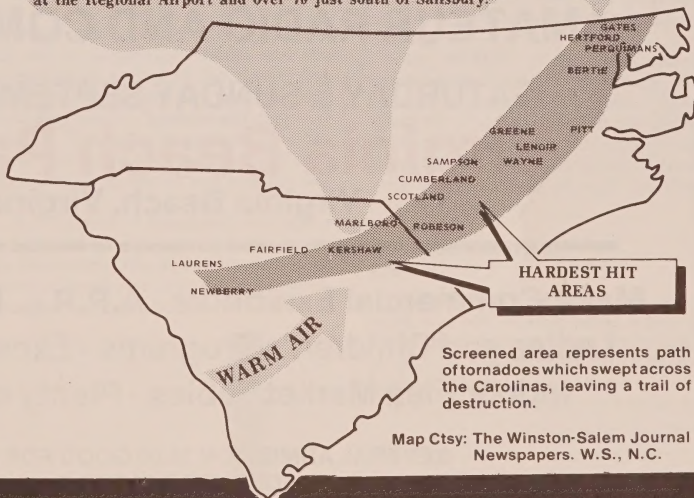
The tornadoes and unusually severe winds and snowy thunderstorms which struck the Carolinas in March was part of a gigantic storm system of near hurricane intensity that came about because of an unusual set of meteorological conditions.

A vast body of warm, moist air from the Atlantic was driven over cold, dry air descending from Canada, leading to extreme atmospheric instability and turmoil. The result, according to weather officials, was one of the most severe general cyclonic storms in recent history. Air pressure fell close to levels recorded in hurricanes.

The tornadoes were spawned by a wild spring storm that developed off the Gulf Coast, swung out of Texas and cut a swath across northern South Carolina before tearing through the North Carolina sandhills and coastal plain and heading out to sea.

The storm was a broad cyclonic system rotating counterclockwise, as typical of all such storms in the Northern Hemisphere. Its center moved northeast across Mississippi, Georgia, the Carolinas, eastern Virginia and Maryland and then out to sea.

The winds in tornadoes can reach 300 mph. Spawned in thunderclouds, the spinning winds eventually work toward the ground. Wednesday's weather conditions were classic. Cold air from the Northwest collided with warm air from the Gulf Coast. The warm air rose, churned and developed into the funnels that touched down throughout eastern North Carolina. The temperature difference caused the storm's severity. At one point Wednesday evening, the temperature was 49 degrees at the Regional Airport and over 70 just south of Salisbury.



The Tornadoes came... left wide areas in destruction. The news media covered the people in the storm area, the Red Cross, National Guard and Air Force. They even covered the whys and wherefores of the weather which caused the tornadoes. The hams who came in and set up vital emergency communications for days and weeks were completely overlooked by the media... which is typical. The Repeater Journal gives you the ham operator side of the story. —The Editor.

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Tornadoes Devastate Towns in North and South Carolina

A REPEATER JOURNAL SPECIAL SECTION

Foreward

When dozens of tornadoes touched down in South and North Carolina Wednesday night, March 28th, we weren't caught off guard, we just didn't expect such devastation . . . so close to home.

Our regular CVRA News Net was conducted that night, even though many repeaters were under Severe Weather alert. Many counties were under Hurricane Watch conditions until 11:00 p.m. Our first inkling of something bad was a report at 8:50 on the net that a tornado had touched down in Welborn in North Carolina. We closed the net, hoping that was all there would be. Little did we know that South of us, in Bennettsville, McCall and other areas of South Carolina, tragedy had already struck and was heading our way.

SOUTH CAROLINA

Wednesday 5:30 p.m. Greenville

Sue Chism, N4ENX of Greenville hearing of coming bad weather, kept a constant vigil on the TV and her 2-meter rig. She made contact with Blant Addison WA4RNU, of Toccoa, Ga. who always gave her weather warnings coming up the line. Blant told her about bad weather reports he was hearing, heavy storms, rain, wind, hail and lightning.

At the same time, the Greenville Civil

When we got up Thursday morning, it hit us . . . we learned of the devastation in South Carolina, and in North Carolina, East of us.

Amateurs everywhere rallied and volunteered and worked, some for days without going back home. Some traveled hundreds of miles, some used up vacations, some went without sleep, food . . . but stayed and did their job. When their job ended, they packed up and went home . . . leaving grateful communities, unable to thank them properly for what they had done.

I wish I could shake each of your hands, pat you on the back and tell you in person what a great job you did . . . I can't so I'll write it here.

Congratulations fellas and gals . . . "You done good!!!!" (Editor)

Defense notified Dot Bedford, K4AOH, the EC of Greenville County and Dot immediately activated the Emergency weather net on the 01-61 repeater. Sue said they had 73 checkins and everyone waited. The net was connected to the weather bureau and weather conditions were being passed to the weatherman on duty.

At 7:00 p.m. it happened, they got a report that a tornado had touched down in Newberry. The storm seemed to be passing Newberry through Winnsboro, (North of Columbia) toward the North

Carolina border.

Then reports started coming fast. One mile of Main street in Newberry was wiped out, trailers turned over, trees down.

In Fountain Inn, about 20 miles South of Greenville, a tree blew over onto a car, killing a woman occupant.

By this time, rain, hail and lightning was hitting the edge of Greenville. Amateurs on the road reported trees and poles snapped.

Sue said no real damage occurred in Greenville, but they stayed with the net and assisted in passing traffic in and out of Newberry and surrounding areas over the 01-61 repeater and on 3915, the SC SSB net.

Fritz, W4MTO of the Red Cross in Spartanburg went to Newberry and Laurens to assist when possible. Dave, KA4ETY who worked for the phone company in Newberry said service was disrupted. W4VYS, Tom Schley of Newberry was kept busy all night assisting wherever possible.

Wednesday 6:30 p.m. Cheraw

Jack Peguess, KA4ABW had just left work and was headed home when he heard about the impending bad weather in his area. As he drove into Cheraw, hard rain started to pelt his car.

"I'm kind of an unofficial observer for

Continued on Next Page

Tornado Statistics

Here is a tabulation of damage from the Tornadoes as supplied by the American Red Cross. Representing North and South Carolina.

Killed - 57
Injured - 1,240
Hospitalized - 181
Single Fam. Dwell Destroyed - 743
Single Fam. Dwell major damage - 615
Single Fam. Dwell minor damage - 1,448
Mobile homes destroyed - 424
Mobile homes major damage - 132
Mobile homes minor damage - 147
Apts. destroyed - 64
Apts. major damage - 96
Apts. minor damage - 96
Families suffered severe loss - 3,950
Est. Cost to Red Cross - 2,748,500



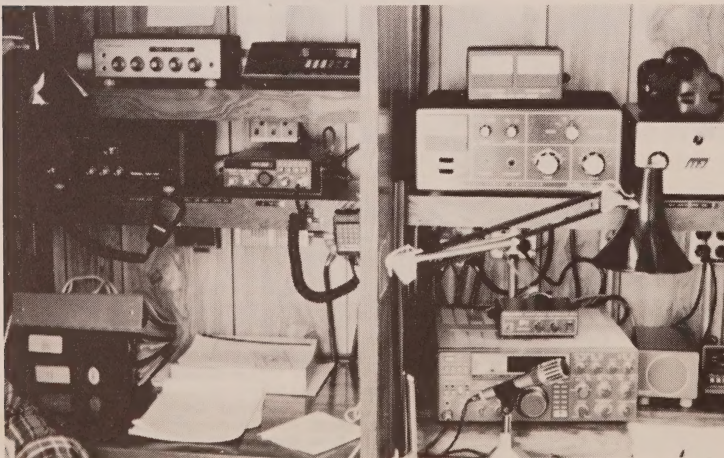
TORNADOES flung the remnants of a mobile home frame across a house in downtown McCall, S.C. The nightmare occurred on March 28. (Photo: Rusty George, WD4HEM)



BAPTIST State Convention Disaster Relief vans were on the scene in McCall and Bennettsville, S.C. to feed residents and provide a communications point for Amateurs. (Photo: Rusty, WD4HEM)



DOWNTOWN McCALL, S.C. What was once a row of residences now is only a pile of debris as mighty tornadoes swept through the area on March 28. (Photo: Rusty George, WD4HEM)



COMMUNICATIONS room in the Disaster Relief van is completely equipped with emergency generator, HF and 2-meter Amateur communications facilities. (Photo: Rusty, WD4HEM)

the police department", Jack said, "I call them when I see something, and they call me when necessary."

Jack said his police contact called him at 6:40 just as hard rain and hail began banging on his house. The police said a tornado had been sighted at Patrick, about 15 miles SW of Cheraw.

He noted that his barometer which had down to 29-inches, was down out of sight on the dial. Jack headed for the police department, arriving just as the phone rang, reporting tornados in Cash, just 5 miles away.

Jack said he was an official observer for the National Weather service, and he got Jim Walker, WD4HLZ to call the weather service. The rescue squad was called out, and Jack headed for Cash, following the Rescue Squad. On arrival they found two houses demolished and the pattern indicated the storm was headed toward Bennettsville.

Jack said they immediately alerted the weather bureau and figured the warning gave Bennettsville a 15 minute advantage of the coming storm.

At that time, Hayward Furman, N4CBQ of Bennettsville came on the air to notify of the coming storm and then reported that tornados had hit his town.

Jack and the Rescue Squad headed to Bennettsville dodging trees, telephone poles and wires strewn along the road ahead.

Suddenly, there it was straight ahead, the Bennettsville Shopping Center.

"Oh my God! If anybody is in there, they're dead!" Jack said out loud.

He said all his training didn't prepare him for this. The place was total chaos. The shopping center was destroyed totally leveled.

Jack said he and Johnny Driscoll, Captain of the Marlboro County Rescue Squad looked across the center for people.

The only store still open in the center was the Roses store. By this time the place began swarming with emergency vehicles of all types from all the surrounding communities, and the task of looking for survivors began.

Jack said they set up a communications command post at the center. Furman, N4CBQ was sent to the hospital to set up liaison there.

Jeff Mackelroy, KA4BGX (it was later learned he had lost his home) went first to the police department to handle health and welfare traffic, then later moved to Fowler Pharmacy through the night and next day.

A life-saving call came in from Earnest Smith, KA4NIW on the 735-135 Cheraw repeater. Smith said amid the overturned trailers, cars, downed poles and trees, a woman and a little girl were laying in a ditch injured. An ambulance was immediately dispatched from the Shop-

THE SOUTH CAROLINA STORY



Emergency Lifesaving Crew workers and Firemen sift through the shambles of the Bennettsville Shopping Center Wednesday night, after tornado leveled the center. Several people were injured and some killed in the Roses Store which was still open at the time of the storm. (Wire Photo ctsy: The Sentinel Newspapers, W-S, N.C.)

CONVE



AMATEURS, KA4AUR, KA4UR, KA4ABW and KB4GJH stand in the doorway of the Disaster Relief Van in S.C. Communications were run from these vans. (Photo: Rusty, WD4HEM)

ping Center in Bennettsville to rush them to the hospital.

Jack said he was joined by K4JUG, Francis Womack who just happened by, driving from Florida to his home in Rockingham Hamlet. Francis, a pastor stayed until 2:30 a.m., assisting in communications.

When things were shut down the the night, over 80 persons had been treated for injuries at the Scotland County,

Dillon, Cheraw, Laurensburg and Bennettsville Hospitals, mostly from the Shopping Center Roses. Seven persons were dead.

Thursday Morning Bennettsville

The communications system was activated with Amateurs manning radios at the Police department, Emergency communications van, McCall Police department, 1st Baptist Church and other strategic locations. Local emergency, logistical, requests for assistance and health and welfare traffic was passed.

Richard, KA4GUT of Florence along with WB4UDK, Aubrey and KA4AVR, John worked the HF bands passing incoming and outgoing health and welfare traffic.

Although many might not be recognized, Jack said it was fantastic how the Amateur fraternity rose to the occasion when their fellow man was hurting.

Some of those were, KA4WC, WA4VDV, WN4CKG, N5EPP, KA4FTQ, WB4MVK, KA4BFY, WB4RAM, WV4Z, KA4VUB, NG4S, WB8QYN, W4DCD, N4JJ, N4JJJ, N3ENH, KB4HPD, KB4GJH, KA4WLL, WA4HSE, N4JIX, WD4FJP, NN4N, WD4HEM, and many others.

KF4AK, Thomas Freeman manned the disaster shelter in Bennettsville throughout the ordeal.

"Words cannot describe what we saw," Jack said, "I've been trained for this sort of thing . . . we've seen disasters on TV, read about them, and talked about them . . . but nothing, prepared me for this . . . right here in my own neighboring towns of McCall and Bennettsville.



McCALL, S.C. The roof and side of a home in McCall were ripped off, leaving the rest of the house untouched by tornadoes which swept through the area. (Photo: Rusty George, WD4HEM)

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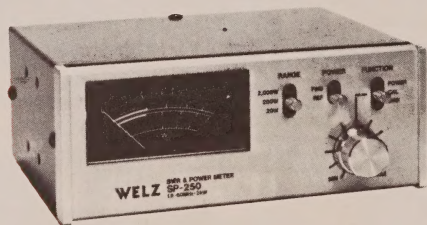
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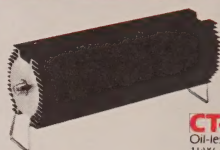
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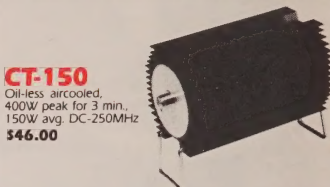
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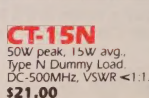
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Then On Into North Carolina!

A Volunteer's Observations

—by Fred Overstreet, WB4QXG

On April 1, 1984 five hams left Winston Salem to the tornado disaster area in the southeastern part of North Carolina. The group consisted of Louis W. Elias, W4DBT; Reece Felts, KB4FOX; Charles Everest, W4HKB; Larry Curry, KD4WP; and Fred Overstreet, WB4QXG. The group had been instructed to report to the command post located at the police department in the town of Red Springs, North Carolina. They left at mid-afternoon in KD4WP's motor home. The group had received instructions that they would be used to provide emergency communications in the area, but no more detail than that.

It was dark when we got to Red Springs, and the highway signs had been changed to indicate detours around the town of Red Springs. Although we were able to contact Net Control on the two meter rig in the motor home, Net Control was not familiar with the routing changes that had been instituted by the National Guard around the town of Red Springs. We were able to eventually find

our way into the center of town and it was indeed a very depressing sight. It's hard to visualize going into a small town in this country at night when there are absolutely no street lights or traffic lights that are functioning. At every major intersection there were National Guardsmen standing guard duty. When we reported to Net Control, we found out that we weren't immediately needed, but we were requested to survey two subdivisions in town to determine whether or not power had been restored. The destruction that we saw was far more impressive than anything that we had seen on the newscast on television.

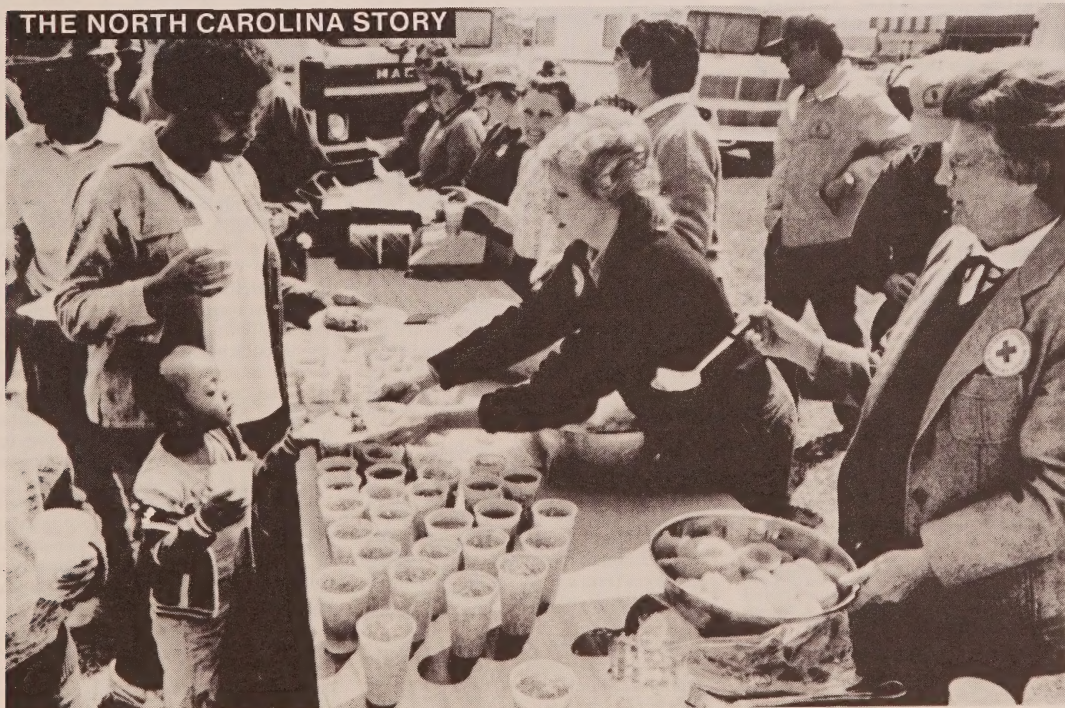
After reporting what we found in the area that we were requested to survey, we went to the shelter in the First Baptist Church and remained on stand-by in the motor home. W4HKB was asked to relieve one of the operators at this site which he did throughout most of the night. Later, KB4FOX was requested to provide relief for one of the operators in one of the other areas of town which he did for the remainder of the night. The rest of us waited in the motor home until morning at which time we were all requested to report to the town of Maxton, North Carolina, approximately 15

miles south of Red Springs. The town of Maxton did not appear to be damaged to any great extent. We reported to the ball park where a food and clothing distribution center had been established.

WB4QXG was assigned then to provide communications at a food distribution center on Hook Road several miles outside of Maxton. This proved to be one of the most devastated areas that we observed. W4DBT was assigned to the police department to provide communications. KB4FOX, W4HKB and KD4WP coordinated local communications from the motor home for all the stations around Maxton and relayed messages to and from Red Springs Net Control. They were also able to provide communication when needed to Raleigh as well as to other areas of the state through a low band rig in the mobile home.

I (WB4QXG) was stationed at a food distribution center on Hook Road. Hook Road passes through a thickly developed area of mobile homes and modest smaller one story houses. These had been occupied almost exclusively by indians who live in this area. I sat in a chair most of the time in front of the food distribution center. We had one or two ambulances parked in the area, and one fire truck, most of the time. These emergency vehicles had been provided by the Pen-

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Red Cross Workers pass out food and drink for dislocated residents of Red Springs North Carolina, after tornadoes wiped out their town. Hundreds were homeless, many were injured and no one had communications until Amateur Radio was brought in and various checkpoints set up throughout the area for emergency communications. (Wire Photo ctsy: The Sentinel Newspapers, W-S, N.C.)

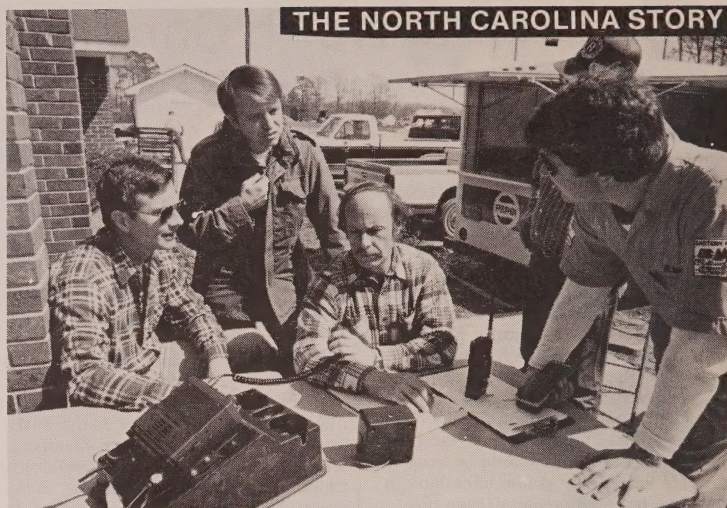
brook Fire Department and the Ladies Auxiliary was also preparing hot food which was served at this area. I could see approximately ¼ mile in any direction from this location, and I could not see one single dwelling that appeared to be habitable. Indeed, for the most part, I could only see foundations where dwellings had existed and the twisted steel carriages of motor homes. The bodies of these motor homes were merely sheets of aluminum that were tangled in trees perhaps a quarter of a mile away from this area. There were many times that the communication between our location and the ball park was necessary to request additional food supplies and other supplies. There was a volunteer crew which was stringing a power line in this area. The electricity at this center was being provided by a portable generator and we requested a drop service to the area as soon as the power lines were complete so that the generator could be discontinued. This equipment was delivered by the chief of police. Little things went wrong as can be expected in any type of emergency. Someone had filled one of the gasoline cans with water so it was necessary to drain the generator tank and clean the carburetor and then to obtain additional gasoline. But eventually, the generator was restarted.

I was relieved in the afternoon and rejoined the other Winston Salem Hams at the ball park and we returned to Winston Salem Sunday night. The one thing that will probably remain in my memory longer than anything else concerning the time that was spent in this area was the sight of a very frail elderly black woman who wandered up to the distribution center. She was given a hot meal and told to pick out some clothing that would fit from the supplies that were located in an army tent. She sobbed uncontrollably for almost a minute and then dropped to her knees in the dirt and said "Thank you sweet Jesus". I only wish that all the people that contributed food and clothing that was sent into this area could have seen this sight so that they would know how much their contributions were appreciated.

A Traffic Handler's Observations In Goldsboro and Mt. Olive

—by Wilbert Musselman, WD4HTE, Goldsboro, N.C.

As I sat at my desk on Wednesday night, during the CVRA News net I noted heavy rain and wind gusting up to 80 mph on the wind gauge above my desk. At 9:00 p.m. I checked into the Piedmont Coastal Traffic Net on 28-88. I was informed later in the net that a tornado had hit Goldsboro (my home town), which proved to be false; Mt. Olive was the place instead.



AMATEUR NET CONTROL FOR PITT COUNTY . . . Pitt County amateurs, left to right, Gary Ambert, AI4J; Danny Shive, K4WKZ; Pitt County Emergency Coordinator Bernie Nobles, WA4MOK; talk with Eastern Pines Fire Department officials during the clean-up of Pitt County communities. (Photo by Tommy Forrest, N4GVK)

The next afternoon, I was listening on the Emergency net on 28-88 concerning tornado information. I heard and accepted a priority message from Seymour Johnson AFB concerning people in South Carolina wanting their AF personnel to come home and help in the disaster area there. I promptly delivered the traffic.

At 7:00 p.m., received another H & W message for a person at Seymour Johnson concerning the status of an individual, and passed it promptly, and passed on positive answers as to the persons well being. At 9:00 p.m. heard KD4QI Reuben Grant go to the Mt. Olive National Guard Armory to send and receive messages. He passed four messages to the Emergency Operations center in Raleigh until they shut down at 11:00 p.m.

The Red Cross requested communications assistance for the next day. Tom Pugh, KB4JO of Winston-Salem was on the scene at Mt. Olive, working in an official capacity with the Red Cross (where he would remain most of the following week.)

Responding to need for help at Mt. Olive, I took my Motor home and set up an emergency communications point to handle messages for the Red Cross. KF4FV, Roy Lane was stationed at the chapter house in Goldsboro to receive messages from us. We passed numerous messages from point to point throughout the day.

Sunday morning, KE4HZ, Roger Casey was stationed at the Mt. Olive communications point and N4JCC,

Wilson Mewborn was at the Goldsboro Red Cross point. At noon, KF4VW, Sidney Webber relieved Roger and

W4LWU, Jim Peacock took over the Goldsboro point.

At 6:00 p.m. the Goldsboro Red Cross Communications point was terminated since Routine traffic from Mt. Olive to Goldsboro had slowed to a trickle.

Monday afternoon (1 April) the National Guard requested communications assistance at Mt. Olive. It was too late in the day, almost every ham operator was not available. However assistance was assured for the next day.

At 8:00 a.m. Tuesday morning, I went to the Mt. Olive National Guard Armory to assist in delivery and receipt of messages between the EOC in Raleigh and Mt. Olive. W4GJS, Henry Simmons was on duty. He was relieved at about noon by WD4HTE, Muss Musselman and N4HHC, Warren Lennon. About 8 messages were handled. One particular message was sent, and the answer received back in less than 10 minutes. This greatly impressed Major Schriber, the National Guard Detachment Commander. Earl, KD4XB from Seymour Johnson joined us later in the day for assistance. Operations were terminated for the day at 8:00 p.m.

On Wednesday morning Jim Peacock assumed position at Mt. Olive to assist in the traffic. Overall, operations seemed to be winding down, as fewer messages were being passed. At 5:00 p.m. operation was terminated for the day.

Thursday, we didn't resume operation until noon, when WD4HTE assumed the point at Mt. Olive. At 2:30 p.m. a Tornado watch was received by radio affecting an area to the South and West of Mt. Olive. This station was used as an offi-

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GREENVILLE HAMS AID IN CLEAN-UP . . . Greenville hams Allen Merritt, KB4ASC, and Floyd Brothers, WN4A, were two of the many amateurs aiding in the clean-up of hard-hit areas in Pitt County after a killer tornado struck the area. (Photo by Tommy Forrest, N4GVK)

cial weather information source. As bulletins were received, they were passed on to the Red Cross and the National Guard. Copies were also posted on local bulletin boards for all to see and read.

At 6:00 p.m. the Tornado Watch was downgraded to a severe thunderstorm watch and the operation was terminated.

The Wayne County ARC was used as an emergency telephone line between Mt. Olive and Goldsboro, and Raleigh for the Red Cross and the National Guard detachment.

In summary, we spend about 85 manhours at the Mt. Olive point. About 20 manhours at the Goldsboro Red Cross Chapter House. Messages sent: 2-Priority, 11-H & W, and 8 Routine. We received: 1-Priority, 5-H & W and 5-Routine messages.

Hams Aid In Pitt County

—By Bernie Nobles, WA4MOK
& Tommy Forrest, N4GVK

After the CVRA News Net concluded March 28, Richard Kelly, N4BKX, checked in on the 145.350 repeater in Greenville saying an apparent tornado had touched down in Ayden, nearby where he was traveling. Doug Ferris, K4ROK, was called and asked to proceed to the Pitt County communications center to stand-by. Meanwhile, N4BKX, kept reports from the Ayden community coming in along with Carl Evans, WB4QOB, who lives on highway 43 south of Greenville, in the path of the tornado. Carl stated he was OK.

By this time amateurs were being called by phone to check in. At approximately 2130 hrs., the 145.350 repeater was declared an emergency only

repeater, and Bernie Nobles, WA4MOK, would be the net control. When links were set up between the Pitt County Comm. center, the emergency net moved to the 147.090 repeater. As other reports were coming in, Pitt County Emergency Management Coordinator Bobby Joyner said D.H. Conley High School would be used as a refugee center for storm victims. A call was put out for someone to go to Conley High School. Jan Beckwith, WA4VDJ, and Frank Tate, W4OCT, said they would respond.

In Ayden Richard, N4BKX, was involved in helping fire/rescue personnel locate victims in the Greenbriar apartment complex. Wayne Ross, WD4JPQ, was called and asked to proceed to the Pitt County Comm. center and assist K4ROK. Reports were now coming in from the comm. center, that nurses were needed at the Eastern Pines fire department. Richard, N4BKX, said he picked up his wife who is a nurse and a nurse friend and he would transport them to the Eastern Pines fire dept. Once again K4ROK requested that a person be sent to the Pitt County Memorial Hospital. David (last name not known), N4JVD (he is a resident doctor in emergency medicine) said he would respond. Also George Threewitts, KB4CWN, checked in and stated he was enroute to the Eastern Pines fire dept., and Doug Beckwith, N4CZT, said he would go to D.H. Conley High School.

The Pitt County Comm. center asked if we could get a station in Raleigh to contact the National Guard. WN4Z, A.B. Gentry made the phone call. By this time all phone lines leaving Greenville were very busy and getting an outgoing line was almost impossible. Bobby Joyner, Pitt Count. E.C. asked that the Guard supply about 50 men to Greenville. The

message was received by the National Guard.

At this time it was said G.R. Whitfield School in Grimesland would also be opened for a storm center for victims. Rufus Keel, KA4RPZ, had checked in and was asked to proceed to the school. Allen Merritt, KB4ASC, also assisted.

Danny Shive, K4WKZ, was asked to check with the Fast-Fare store in the Eastern Pines community and see if they would allow rescue vehicles to fill up with gas. Permission was granted, and this information relayed back to the comm. center.

In the events that followed, Frank, W4OCT was asked to go to the Taylor Estate Mobile Home park off highway 43 to see how many more injured there were. Greenville Fire Chief Jenness Allen said the area was secure. Chuck Collingwood, W9TS, was asked to go to the hospital to assist N4JVD. Joe Melton, WB4SLF of Farmville and Doug Bert, WB4UOU, of Grifton noted drastic drops in the barometer and reported this to net control. George, KB4CWN, was asked to get the nurses at Eastern Pines Fire dept. to go to Conley High School to assist ones already there. Wayne, WD4JPQ reported from the Pitt County Comm. Center, two more tornadoes were reported in the southern part of the county. All amateur stations on were advised.

Murray Adams, WA4DAN, called and asked for a station to QSY to the 145.350 repeater and contact Bill Overton, WB4PAC, concerning the destruction of his mobil home and tower. Wayne, WD4JPQ, relayed weather reports as they were available. Contact was lost with the station at Conley High School, and Butch Adams, KA4QXQ, was sent to check the trouble.

As the morning proceeded a curfew was imposed on the entire county and amateurs were advised if there was any trouble getting through roadblock, the officers were to contact Bobby Joyner, Pitt County E.C. No problems were encountered from the curfew and all went smoothly.

Three nurses got off duty at Pitt County Memorial Hospital, and Chuck, W9TS was requested to escort the nurses to Conley High School. While enroute, he had a flat tire, and Doug, N4CZT, who was on a coffee run (coffee runs were very important) went by and picked up the nurses.

As the morning progressed reports were sent in as to the number of victims the needs throughout the county. Many stations from outside the countys checked in and gave reports. Amateurs not participating in the emergency respected the net on the repeater and did not interfere.

Bernie Nobles, WA4MOK, Pitt County Emergency Coordinator (amateur radio) said, "All amateurs did the job that

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New NC SM Has Plans For Clubs, Traffic

—by Rae Everhart, K4SWN

I would like to thank everyone who supported me in the recent ARRL election for Section Manager (SM) of North Carolina. I look forward to working with the League membership and furthering the League in NC.

The key will be to get more amateurs involved in the field organization and to recruit new members in the League. I see a trend coming in the Traffic Handling Program in that more and more traffic is being passed on the VHF/UHF bands. This is due to the large number of repeaters — local and wide coverage in our state. This is good because it gets more amateurs involved in traffic handling and to be better prepared in case of an emergency.

A good example was the communications provided in the tornado disaster in eastern NC on Wednesday night, March 28. 2 Meters was carrying a large share of the traffic.

NORTH CAROLINA

was put forth to them in a very professional and adult way. As EC of Pitt County I'm very proud of the operation and the amateurs that risked their lives to get things done."

Area amateurs also assisted the following days in clean-up operations providing communications between clean-up crews and the Eastern Pines fire station. Hams also provided transportation for work crews in the hard-hit areas of the county.

Repeater Coordination

The K4ITL 28-88 repeater in Raleigh and occasional links with the Wilmington K4GMP repeater passed most of the Tornado related traffic. Areas hit near the Greenville area utilized the W4GDF 69-09 repeater for their traffic.

The Raleigh repeater, according to Danny Hampton, K4ITL was patched directly into the Emergency Operations Center in Raleigh. Danny said much out-of-county help was coordinated on this repeater.

"We had over 250 participants coming in the area," Danny said, "Our job was to coordinate with the effected areas and send help where it was needed most."

He said the 28-88 repeater remained in Emergency Alert Net status from late Wednesday night until the following Tuesday, when things began to taper down.

Emergency traffic and coordination in the Pitt County area was handled through Tommy Forest N4GVK co-operating with the Pitt County EC Bernie, WA4MOK.

Another part of ARRL that will become more important is the Volunteer Examiner Program. There are 60 plus amateur radio clubs in NC and as of 3-19-84, the League had received applications from 100 amateurs in NC, 55 of which were Extra Class, to help with the VE program. The League needs more volunteers. Hopefully, each club can recruit a team and well cover our state.

As a note, the FCC has advised that an Advanced Class amateur can only administer a Technician Class Exam. An Extra Class has to administer the balance under the VE program. They (FCC) prefer a team consists of 3 Extra Class and 1 alternate.

If anyone needs a registration form, an SASE to me will get one. Possible start up time will be Sept. 1. I hope a close relationship between the membership and the League will be prevalent in NC. There are many facets of Amateur Radio and ARRL. I welcome your comments, newsletters, suggestions. This will greatly assist me in my job.

FREE Repeater Journal Mailing

Our Circulation Department plans a free Repeater Journal mailing on May 21 to former members of CVRA-SERA who let their memberships expire.

If you have a friend
whom you would like
to receive a free
REPEATER JOURNAL
to be included
in this mailing:

Send his name
and address on
a card to:

CVRA-SERA Editor
600 Lakedale Road
Colfax, N.C. 27235

Cards must be received prior to Friday, May 18th, to enable us to make a label and insert it in the May 21 Bulk Mailing. Please limit your request to not exceed three persons.

Accident Report Form

—Adapted By Wilbert Musselman, WD4HTE

I am writing in response to your request for further information in block 3 of the accident reporting form. I put poor planning as the cause of my accident and you said that I should explain more fully. I trust the following detail will be sufficient.

I am an amateur radio operator. On the day of the accident I was working alone on the top section of my new 80 foot tower. When I had completed my work, I found that I had, over the course of several trips up the tower, brought up about 300 pounds of tools and spare hardware. Rather than carry the now unneeded tools and material down by hand, I decided to lower the items down in a small barrel by using a pulley, which fortunately was attached to the gin pole at the top of the tower. Securing the rope at ground level, I went to the top of the tower and loaded the tools and material into the barrel. Then I went back to ground level and untied the tope holding tightly to insure a slow descent of the 300 pounds of tools. You will note in block 11 of the accident reporting form that I weigh only 155 pounds. Due to my surprise at being jerked off the ground so suddenly, I lost my presence of mind and forgot to let go of the rope. Needless to say, I proceeded at a rather rapid rate of speed up the side of the tower. In the vicinity of the 40 foot level I met the barrel coming down. This explains my fractured skull and broken collar bone. Slowed only slightly, I continued my rapid ascent, not stopping until the fingers of my right hand were two knuckles deep into the pulley. Fortunately, by this time I had regained my presence of mind and was able to hold onto the rope in spite of the pain. At approximately the same time however, the barrel of tools hit the ground, knocking the bottom out of the barrel. Devoid of the weight of the tools, the barrel now weighed approximately 20 pounds. I refer again to my weight in block 11. As you might imagine, I began a rapid descent down the side of the tower. In the vicinity of the 40 foot level I met the empty barrel coming up. This accounts for the two fractured ankles and lacerations of my legs and lower body. The encounter with the barrel slowed me enough to lessen my injuries when I fell on the pile of tools, and fortunately only three vertebrae were cracked. I'm sorry to report however, that as I lay there on the tools in pain, unable to stand, and watching the empty barrel 80 feet above me, I again lost my presence of mind. I let go of the rope.-----

"I Can See It Now..."

—by Jim Parsons, WA4LTO

"Hey Matt! Move your foot!"
"What for?"
"I'm trying to take your picture, that's what for."
"Can't it wait? I've got to finish stringing this dipole. Field Day starts in 10 minutes."
"That's just it. I want to take your picture so we can send it in to QST."
"Why?"
"Cause we've never been in there before."
"So what?"
"You toad! All the high scorers from Field Day get their pictures in QST and there's always a fancy caption that goes with 'em. Now how are you going to feel when we win the contest and there's no picture? Why, all those stations we worked are gonna think we cheated!"
"Well, let's take a group picture tomorrow when we pack up, OK? I've got to finish this antenna."
"That's no good, Matt! We could've taken a picture last March and sent it in. I'm telling ya, we need action pictures. Now are you going to move your foot or not?"
"Jim, I have to finish this antenna!"
"Hey Dave! C'mon over here and poke Matt with this gin pole. Now this will make a great action shot. The good Field Day pictures are always funny."
"No Dave, don't stop that! My foot is on that branch!"
"I can see it now: 'K4KDJ Hams Covort Before Crushing Competition.' We'll make the title page for sure. OK Matt, watch the birdie."
"Wait a second! I'm not holding on to anything! Wait!!!"
"Matt, quit moving around! You want this picture to come out all blurry? Now give me a big smile."
"No! Wait!!! I'm just holding on to the antenna!! WAIT!!!
AAAAAAAGGGGGHHHHH!!!!!"
"Gee Matt, it's too bad about your arms there. Lucky thing you're a phone man, and anyway running Field Day is a lot easier when you're using VOX. You'll feel better when they take the casts off."
"Hey Jim! 20's opening up! Chuck's knocking them out like gangbusters!"
"Hot dog! That'll make a great shot. I can see it now: K4KDJ Hams Answer Flurry of CQ FD's on Their Way to Record Score. OK, let's get everybody in here now. No no, Chuck. You just keep operating... but straighten up some... you're slouching too much."
"But I can't breathe!"
"... was that K4KDJ/3?"
"Will you quit complaining Chuck? You almost missed that station. Now, let's see... Yeah Rex, keep logging... no no, don't look down, look over at

Chuck. You know, the look of confidence.' Yeah, well fake it anyway."
"... K4KDJ, AB9I, sorry OM, we've worked..."
"Jim, I can't see the dupe sheet if I'm looking at Chuck."
"Hmmm, we do get ourselves a problem here... Adam, hold the dupe sheet up so Rex can see it... but get out of the picture... it'll sort of be like you're holding cue cards. What's good enough for Hollywood is good enough for us... yeah, just squeeze up against the side of the tent there. Don't worry, I'll get you in the next one. Now, what else do we need... Matt!! Hobble on over here and sit down next to Chuck. That'll be a great inspirational shot: 'Wounded Op Watches Comrades Carry On to Mammoth Score.' The folk in Newington will eat it up. Just get that crutch out of the way... I don't know where, just out of the way. Put it down, will ya!"
"CQ Field Day — Oooooof, my ribs!"
"QRZ Field Day? WB2OMZ/2."
"Chuck, quit talking gibberish to these people! We've got to roll up these points. Now we need one more thing for this picture... one more person to balance it out, but who... Rob! Get over there behind the rig."
"What???"
"C'mon get over there. Act like you're watching the goings on. You've seen those old QST pictures, haven't ya, where some guy is standing behind the rig and the caption says 'as W4 so-and-so looks on.' Well, get over there and look on!"
"But Jim, I can't get around the table. Everybody is in the way."
"Well, crawl over the top then. C'mon, before Rex's face freezes in the 'look of confidence.' Climb over Chuck now... Upsie daisy."
"N4GWJ, you're 2-oooooff!!!!"
"K4KDJ, was my report 2F?"
"There you go again with that gibberish, Chuck! Will you give some accurate reports reports instead of clowning around? We've got a real pile-up goint! Easy now, Rob. Set your foot over here for balance. Whoops, sorry Matt. Forgot about your busted wing there. C'mon Rob, hurry up!"
"Jim, I can't get back here... I'm losing my balance!"
"Sure you can make it. All you need is a little nudge. Here you go."
"Jim, no! I'm too close to the finals!! I'm..."
ZZZZZZAAAAAAPPPPPPP!!!!!!
POWWWWWW!!!!
Stop whining, Rob. Sue will love that new hair-do. Disco perms are still in style, ya know... I think. And will you quit yapping about your rig? You were looking for an excuse to go buy a new one, weren't you? Well...
"C'mon guys, cheer up? So what if we're out of 2A. We can still win the 1A

class hands down. That's what Field Day is all about anyway. One rig matched against the world, not like those 36-A or 49-A guys you hear these days. The only reason they win is because there's no one else fool enough to go out and run that many stations at once. Class 1-A is the REAL ham's division. I can see it now: 'College Hams Tough It Out to Capture Field Day's 'Black and Blue' Division.' Yeah... I like the sound of that."
"Okay Adam, time to go refuel the generator. And at 3AM, it'll make a real classy nighttime shot."
"Gee Jim, it's awfully dark out here. Didn't we bring any flashlights?"
"Well, I really didn't have any room in the car for flashlights what with my camera stuff and all. But it doesn't matter 'cause I brought along my lighter and that should be enough light until I take the picture... just have to feel around for the gas cap, that's all."
"I think I found it."
"OK, now look towards me... over towards my voice, Adam. Sure hope the batteries in my flash are working. This shot may have possibilities beyond QST. I may make the staff of National Geographic or something."
"Ooops, I think I spilled some, Jim."
"Damn it, I can't adjust the shutter speed. Here Adam, hold my lighter while I—"
"But Jim! I said I spilled some—"
KABOOOOOMMMMM!!!!!!
"All right, all right, everybody pipe down, will you? So we didn't win Field Day! Big deal! Field Day is just for contesters and picnickers. We're REAL hams, guys, and we know what that means: the big PS — Public Service. We did our part helping with that big forest fire now didn't we? That's the stuff in QST that people are going to read, not a bunch of contest scores in little print. Now we're going to need a picture when they write up that big story about us for Public Service News. Maybe we'll have our own article. I can see it now: 'Courageous Hams Relax After Saving Thousands of Lives in Big Public Service Operation.' Okay everybody, look this way... Nurse, could ya prop up Adam a bit so we can see him? Okay everybody, say 'cheese!'"

Greenville Hams Help With Bike-A-Thon

Greenville Hams Tommy Forrest, N4GVK, Rufus Keel, KA4RPZ and Bill Cope, W4LYM provided communications for the Alpha Omega Chapter of the Epsilon Sigma Alpha sorority, a non-profit organization, Saturday April 7. The Hams provided communications between the bike-a-thon checkpoints and to the main registration area at the Aycock Jr. High School in Greenville. (N4GVK, Tommy Forrest)

Roanoke Valley Amateur Radio Club

Mayfest

MAY 27th, 1984

9:00 a.m. to 5:00 p.m.

Roanoke Civic Center Exhibit Hall

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**SECOND PRIZE – Santec 2-Meter
Handheld**

**OTHER PRIZES – Door Prize drawings will
be made hourly!**

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It Has To Have A Purpose

(Editor's Note: Bill Pasternak, well known for his news operation on the West coast, last year took the reins of a nationally distributed biweekly news and information letter, mailed to subscribers around the country. The Westlink Report is known far and wide and used by hundreds of club news letter editors and news net operators. Bill was gracious enough to send us his story about the "California Ham" on VHF and UHF. He felt Repeater Journal readers might be interested in what is going on along the West coast.)

—by Bill Pasternak, WA6ITF
Editor: Westlink Report

Perhaps you have heard the old joke: "How many Californians does it take to change a light bulb?". To anyone who has lived out here for any length of time, the answer is obvious. It takes five. One to change the bulb, and the other four to join in the overwhelming experience to give it a definite purpose. Corney yes, but in many ways it explains a good part of the California lifestyle; especially that found in the southern half of the state. It is also applicable to Amateur Radio in general, and repeater operation in particular.

Albiet, anyone anywhere who puts up a repeater, obviously has a definite reason for doing so. In the "early days", the reason was experimentation. To see if it was possible to automatically retransmit signals and extend their range on VHF and UHF. The next phase was the utilitarian repeater. Systems that account for the better part of the 5,000 some odd machines that dot the North American landscape from sea to shining sea. This is the "phase" that most repeaters are in today. "The groundwork has been done, and now its time to reap the rewards of our past"; and so rightly so. But Southern California has either bypassed or graduated from that stage in relay system development. In fact, while repeaters were just taking root throughout the length and breadth of the nation, that stage had been well into the areas historical record books.

The vast majority of California systems can only be called "repeaters with a definite purpose". Yes, we have our share of "rag-chew" and "emergency-only" boxes among the hilltops, but since the mid-1970's there have been emerging more and more special category machines. Today, there exists within the range of the average hand-held in the Los Angeles metro area in excess of 300 operational systems on the two meter band alone. Interspersed within the normal chatter one will find such interesting items as a repeater system specifically for use by school children. It was the "gift" of a co-worker of mine to the Los Angeles Unified School District. As a youngster, Keith Glispie WA6TFD found it was hard for someone in his early teens to get and hold a worthwhile

QSO with those older than he. I can remember back almost a decade ago talking with him at meetings of the now defunct Palisades Amateur Radio Club of Culver City about this problem, and the solution he had way back then. That of putting up a repeater system upon which "kids" could converse with one another. Keith never forgot that dream, and a few years ago he made it come true. Los Angeles does have a "repeater for school aged children", thanks to WA6TFD. Today Keith is one of Hollywood's most respected video editors. You have probably seen his name attached to countless television programs. You never knew he was a ham, but more importantly, he is a ham who never forgot a childhood dream.

This is only one of many such "Special Purpose" repeaters that have come into being over the years. Others exist around ethnic or religious lines, language lines, limited scope special interests such as computers, and just about every aspect of society that you might imagine. There is even a repeater for bootleggers, foul-mouths and jammers. This particular channel is described variously as the "garbage pit", the "sewer" and other applicable terminology. It is very popular with its inhabitants who have formed a sort of "underground radio" cult around it. Why do the Amateur Community and the FCC permit it to exist you ask? I suspect that the answer is that it acts as a "corral" of sorts, keeping those who believe that they have the god-given and constitutional right of public obscenity contained. Before its existence, the problems of malicious interference and obscene transmissions were at a point where it was infesting every sector of the two meter band. Each time the FCC would revoke a license among this group, there were 10 or 20 new, well schooled operators to take his place. When the Commission really got tough on malicious interference, those at the forefront of this regionally organized activity obviously felt it best to pull back. The basically set up shop on one pair, and an unwritten truce exists that implies that they will stay in their own back-yard if everyone else is willing to stay away from them. That status-quo exists to this day. Obviously, this is

another "repeater with a purpose", albeit a very strange one at best.

Regardless of what you might hear or read elsewhere, the birth of the modern VHF/UHF relay system took place in California. Yes, there were some very early experiments. Wayne Green of 73 Magazine talks of an RTTY Repeater he was active with in the 1940's. For all of their accomplishments, these can only be classified as being short term experiments. It was not until the late 1950's when a broadcast engineer named Arthur Gentry; call sign W6MEP placed K6MYK on the air from atop Mt. Lee overlooking the greater Los Angeles basin that the repeater revolution started. Therefore, it is probably apropos that in late 1974 the nations first "Computer Communication" repeater went into operation from atop the Palos Verdes peninsula at the southwest corner of the city. Now remember that this was long before the FCC adopted rules permitting ASCII and other forms of digital communications in the Amateur service. As far as the world was concerned, it was "just another RTTY repeater", but the form of transmission was not Baudot. Its existence was never publicized, and its owner kept his profile very low. It simply existed and was used by hams interested in digital transmission techniques. Probably it would have been forced off the air by the FCC had the vast crosssection of the amateur community known what the strange sounds emanating from its transmitter really were. There are always those "toody-two-shoes" who let rule books govern their every waking moment. Here tho, that was not the case, and the system exists to this way. Legally in this era I should add, Who put it up? Thats something that will probably be cloked in mystery forever.

Because of special interests, a goodly number of Southern California repeaters are categorized as being "Private". This is especially true on the 450 Mhz band. As with everything else, there are four definite categories of repeaters that exist in this part of the world. Open repeaters need no definition, nor does the term "Experimental". Two others do, and they are "Closed" and "Private". Unlike other areas, the two words hold definite and distinct meanings. A "Closed" repeater is one where membership in the sponsoring orgar: ation is required to gain access to the relay facility itself, but here this membership is available to most interested amateurs. "Private" on the other hand means just that. Use of the system

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It Has To Have A Purpose – California.

Continued from Page 15

is at the sole discretion of the licensee or sponsoring body, but new users are not solicited, nor are they welcome. The vast majority of the 450-500 currently operational UHF systems on 3/4 meters fall into that category. Many are so sophisticated as to make a casual listener turn his head in disbelief. The best known of these is probably the Cactus Radio Network that has the ability to interlink throughout the southwest, as far East as Central Texas these days. Cactus is totally computer controlled, and even has its own system "dial-tone" generated from what amounts to its own "Central Office" location. It is generally believed that the Cactus Radio Network has a goal of reaching coast-to-coast, border-to-border, but those who own and operate it will never comment on this or any other aspect of the operation. Some members openly deny that the system really exists. Simply, several hundred thousand dollars are already invested in the development of the network, and its generally understood that it is off limits to all but those who are invited in.

At least a dozen or more interlinks span the Pacific coastline from San Diego to the Canadian border. Some are "short distance" spanning the 450 miles from Los Angeles to San Francisco, while others "go all the way". While their existence is generally known to the local inhabitants; as are other systems linking to Las Vegas and Reno, there is no "outcry" to open them up to everyone. Why? Because there also exists a definite "pecking order" that most everyone agrees to abide by. It states simply that "I won't step on your turf if you stay off of mine". This holds true for the 75 to 100 UHF systems that have all-band SSB downlinks onto 75, 40, 20, 15, 10 and 6 meters. Some are so sophisticated that you can tune an entire band, swing a beam and even turn on the "coffee-pot" when you are on your way to the repeater site. You do all of this using a 1 watt hand-held radio. I even know of two systems equipped for modes A, B and L on the Oscar satellites, and another that's planning such an addition. However, the epitome of the "California Dream" may

lie with yet another group. They do not have their "dream machine" yet; only part of it. Right now it's a simple UHF repeater/remote-base/autopatch, but the dozen or so owners have bigger dreams. They want to be the first amateur group to place a "Private Repeater/Remote-Base" into geostationary orbit, for their personal use. While we may both laugh and scoff at such a notion, with enough time, energy, money and initiative there is no way of saying what the future might bring. After having lived here for over a decade; and having witnessed first hand how industrious California hams have made other outlandish dreams into commonplace reality, I won't discount anything. It may never happen, but who really knows?

Now a word about frequency coordination. Most geographic areas have a single coordinator or coordination body handling it; usually along state boundaries. Not so out here. The Tahicpie Mountains divide the state in half, and the two sections are as different as night is from day. Northern California has the traditional single entity with assigned coordinators for each band, and they deal only with FM repeaters. The south is a completely different case, where 4 different and distinct organizations exist, and total bandplanning encompassing every aspect of operation and every mode used is the "buzz-word". Lets start from the bottom up. 10 meters has two groups handling things. FM repeaters are the province of SCRRBA, the Southern California Repeater Remote Base Association. That would seem simple enough if not for the preponderance of yet another special interest sharing the band; that of low-power AM. Yes, I said "AM" like in Ancient Modulation. There are several thousand hams using converted C-B radios in the south, and that obviously lent some form of bandplan and bandplanning was in order. Especially after a number of manufacturers started coming out with ready-to-go converted C-B sets that had the majority of operating spectrum smack-dab in the middle of the OSCAR Mode A downlink passband. A better plan was needed, and the Southern California AM-SSB QRP Bandplanning Council was formed to research develop and implement it. They did so back in 1979, and have hung around to represent the political interests of 10 meter AM QRP addicts ever since.

As is the case elsewhere, the 6 meter band is a veritable wasteland, with but a handful of users and an even smaller number of repeaters. They are coordinated thru SCRRBA. Both 2 meters and 220 Mhz have total bandplanning organizations of their own, with TASMA - the Two Meter Area Spectrum Management Association of Southern

California hold forth on the former, and the Southern California 220 Mhz Spectrum Management Association holding forth on the latter. In these two cases, every mode and special interest has a voice in overall band development and utilization. Both groups are offshoots of the old Southern California Repeater Association which did not welcome voting members who were not repeater owners. TASMA and 220SMA changed that; and the face of the coordination process forever.

From 450 Mhz on up thru light, its SCRRBA's domain, with input directly from ATV interests as well. If it all seems rather complex, its probably because political ideologies differ markedly from the users of one band to those who use another. If you trace back the lineage of all of the repeater councils in the state, you will find that all except the 10 meter "AM" group trace their ancestors back to the nations very first repeater coordination body; the famed California Amateur Relay Council". This organization was coordinating repeaters statewide, long before the rest of the nation and world even knew such devices existed.

So there you have a peek into VHF/UHF relay communication in the Southwest. Over a 10 year period I chronicled some of it for 73 Magazine; other parts of it appear in my book on the subject. Many have been the time I have marveled at the tenacity, ingenuity and resourcefulness of these California hams. The pioneering spirit of the old west is still alive. It lives on the lonely mountaintops that dot our landscape, and as a "native" by way of Interstate 40 I can only reflect on some of the marvels I have borne witness to. When I was putting up WA2ZWP back in Brooklyn New York, who knew from interlinks, multiple input ports, voters and the like. I was happy that I could hear the system at my home 15 miles away. These days its not uncommon for me to "key-up" on 2, 220 or 450 and talk to someone in San Diego over 250 miles away, using only an Icom hand-held. That's "commonplace" everyday communication, and nobody thinks it at all being anything but normal.

I leave you then with this thought. We have over 5000 repeaters in the USA. 3500 of them on 2 meters alone. When will the day come that some of us will start thinking in terms of linking two or three dozen of them as an open, cross country system. The technology exists; the mountaintops here have proven it out. All it will take is the interest and cooperation of people like you and I. ...

de WA6ITF

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League Planning Meeting

The Roanoke Division League Planning Meeting (LPM) will be held May 12-13 in Charleston, West Virginia. Gay Milius, W4UG, Roanoke Division Director said more information will be coming later on this very important event.

The LPM is held each year to give League members and other Amateurs a chance to voice their opinions directly, face-to-face with League officials including their directors, Vice Directors, Section Managers and others.

The Southwestern Virginia Wireless Association, Inc.

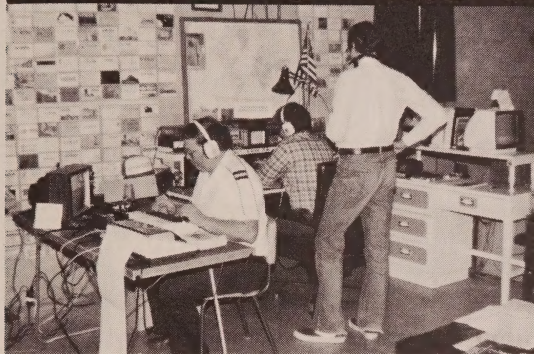


Photo of station KC4DY operated by the Southwestern Virginia Wireless Association during the November Sweepstakes. Seen in photo (foreground) Ben Burch-N4FHL in the computer assisted dupe check position. Standing is the floor coordinator during this portion of the contest John Dunker-KJ7K and just in front of him is the on-air operator and station owner Gordon Garrett-KC4DY. Not visible to the right is the spotter position. Note that the different positions were operated by other club members at various times. - photo by N4JED-David Jones



Station KC4DY operated during the November Sweepstakes by the ARRL affiliated club The Southwestern Virginia Wireless Association from the Roanoke, VA area. Seen in this photo from left to right are: standing John Dunker-KJ7K as floor coordinator, seated but not visible behind John is Ben Burch-N4FHL in the computer assisted dupe check position, seated in plaid shirt Gordon Garrett-KC4DY on air operator and station owner and in the foreground Lee McDaniel-WB4QOJ at the spotters position. The spotter could communicate to the on air operator via the 6" monitor just visible in front of the operator's face. This was controlled by a second computer at the spotters position who could enter call, frequency, and other info onto the screen about rare multipliers for the operator to read. - photo by N4JED-David Jones

A Club on the Move!

—by Lee McDaniel, WB4QOJ

For a club just looking into its third year, the Southwestern Virginia Wireless Association, Inc. offers a wide variety of activities to challenge the amateur operator. Founded by Hams who wanted to actively pursue new avenues of communications, dx, and public recognition for amateur radio, the club has been making a splash in the commercial media of the Roanoke Valley while boosting the growth of amateur radio through classes and public demonstrations of worldwide communications.

With Public Service being one of the cornerstones of amateur radio, the Southwestern Virginia Wireless Association is becoming more involved in such activities. Through the much appreciated use of the WB4QOJ repeater, we were able to supply the communications for the Star City Marathon run recently in Roanoke, VA. More than 15 members leap-frogged around the course providing communications links between the

police, rescue squads, and race officials.

It was through our club service that medical assistance was directed to injured runners, race officials were kept informed of problems with the course, and police were notified of traffic hazards to runners. It was a thrilling event for our members to participate in and it gained for us many favorable comments from race and city officials along with requests for help with future public events.

The Southwestern Virginia Wireless Association introduced many of its members to the thrills of serious contesting when the club took a crack at the November Sweepstakes. Members set up a four position station at the home of KC4DY whose family kindly put up with our weekend intrusion. The station setup consisted of four positions for 1.) the on-air operator, 2.) the computer assisted dupe checker, 3.) the spotter who used a second receiver to spot needed multipliers, and 4.) the floor manager who coordinated everything. Club members alternated between the positions throughout the contest allowing everyone to participate as they wished.

One interesting feature of the station operation was the use of a second computer by the spotter. By placing an auxiliary 6" video monitor above the transmitter, the spotter was able to display the frequency and call of needed multipliers for the on-air operator to read.

For most of the club participants this was their first taste of contesting. We even had the local CBS affiliate produce a 3 minute segment on the SWVWA and

contesting for the local news. We obtained a clean sweep in the contest and are hoping to win the state and possibly the region.

Other activities of the Southwestern Virginia Wireless Association include the sponsoring of the 745 DX and Information Net over the facilities of WB4QOJ repeater at 146.745 Mhz.

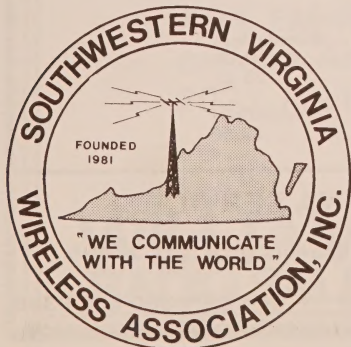
The net meets every Thursday evening at 8:30 pm and has between 20 and 30 regular checkins. DX and ARRL bulletins are read and discussed and information of interest to hams is passed. Everyone is invited to check in to the net or if you have a special notice you wish put on the air, contact our net manager N4FHL.

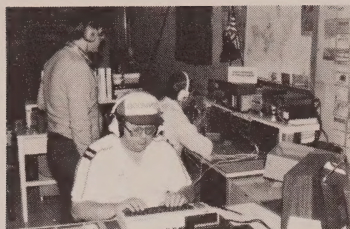
A monthly newsletter "The Ground-wave" also is put out by the SWVWA. Usually running in the neighborhood of ten pages, it includes construction articles and hints, notices of Ham related activities, cartoons, and stories and photos on club activities. Everyone looks forward to seeing who will be featured in the next cartoon strip.

And to get the whole family involved, a monthly breakfast is sponsored by the club at a local restaurant. Being for the family, talk about ham radio is supposed to be the exception instead of the rule (but it crops up anyway). And when nice weather comes around, the SWVWA has picnic/operating parties for the whole family to attend.

New officers for the Southwestern Virginia Wireless Association, Inc. have been elected by the board of directors for the 1984 season. They are: N4GNN, Clay Croom-President; N4FHL, Ben Burch-Vice President

Please Turn To Next Page





View of station KC4DY during the November Sweepstakes as operated by the Southwestern Virginia Wireless Association. In the foreground at the computer assisted dupe checker position is Ben Burch-N4FHL, standing is the floor coordinator Rick Cook-AB4U and seated in front of Rick is the on-air operator John Dunker-KJ7K. Not visible to the right is the spotter position. -photo by N4JED-David Jones

N4JED, David Jones-Sec/Treasurer
WB4QOJ, Lee McDaniel-Activities
KB4PW, Wes Myers-Newsletter Editor
N4FHL, Ben Burch-Net Manager

The SWVWA has several undertakings planned for the near future. The biggest of these will be the opening of a club station in conjunction with the Roanoke Valley Science Museum at their new location in Center In The Square.

In addition to the classes offered by the club at the Science Museum, a multi-operator club station in the cultural center building in downtown Roanoke should add much to the public recognition of Amateur Radio. Using equipment donated by manufacturers and Hams, we will be setting up a permanent display two-operator station with computer interfaced displays and possibly SSTV. There will be regular operating hours set up in the near future.

The Southwestern Virginia Wireless Association, Inc. is definitely a club for the active Ham looking to become involved in a wide spectrum of activities instead of one narrow interest. We reach out and strive to touch everyone for as our motto reads "WE COMMUNICATE WITH THE WORLD".



Southwestern Virginia Wireless Association member Frances Croom-N4HON snagging a rare multiplier while operating station KC4DY during the November Sweepstakes. The club sponsored activity allowed many of its members to participate in contesting for the first time as all members were allowed to take turns at operating the different positions. - photo by N4JED-David Jones

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	CHARLOTTE	NC				6.115/6.715		
	MCINNIVILLE	TN						
	MIDDLEBRO(KY/TN)	TN						
	LOGAN	WV						
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	FOREST PARK	GA	5.625/6.025			6.13 /6.73		
	CHARLESTON	SC	7.63 /6.03					
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	GREENEVILLE	TN	6.585/6.085			6.13 /6.73		
	NASHVILLE	TN						
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	CLEVELAND	GA						
	CHARLOTTE	NC						
	CHATTANOOGA	TN						
	JOHNSON CITY	TN						
	CHESAPEAKE	VA						
4.71 /5.31	ATLANTA	GA						
	TRENTON	NC						
	ROCK HILL	SC						
	ATHENS	TN						
	JACKSON	TN						
	ALEXANDRIA	VA	6.025/6.625					
4.73 /5.33	LAYLAND/MANN MT	WV						
	JONESBORO	GA	6.04 /6.64					
	MT AIRY/TRNR MT	NC						
	BAMBERG	SC						
	CHATTANOOGA	TN						
	KNOXVILLE	TN						
	PARSONS	WV						
4.75 /5.35	SANDY SPRINGS	GA						
	CANTON/CHRS MT	NC						
	CHARLOTTE	NC						
	GREENVILLE	NC	6.04 /6.64					
	MOOREVILLE	NC						
	NASHVILLE	TN						
	BLAND	VA						
	FALLS CHURCH	VA						
	HAMILTON-RTTY	GA						
	WRENS*	GA	6.055/6.655					
	N. WILKESBORO	NC						
	KNOXVILLE	TN						
	BECKLEY	WV	6.06 /6.66					
	GRIFFIN*	GA	6.07 /6.67					
	CHATTANOOGA	TN						
	MT. JULIET	TN						
	STANTONVILLE	TN						
	GALAX	VA						
	WESTON	WV						
	ATLANTA/BELL*	NC						
	HIGH POINT	GA						
	WILLIAMSTON	TN						
	GREENEVILLE	NC						
	MEMPHIS	TN						
	LIBERTY	WV						
	KENNESAW	GA						
	KNOXVILLE	TN						
	NASHVILLE	TN						
	RICHMOND	VA	6.085/6.685					
	MORGANTOWN	WV						
	ATLANTA	GA	4.85 /5.45					
	CROWDERS MT	NC						
	NEWPORT	TN	1.85 /5.45					
	BENTON	TN						
	WELCH	WV	4.87 /5.47					
	ROSWELL	GA						
	FISHERS PK/WS	NC						
	LILLINGTON	NC						
	INMAN	SC						
	KNXVL/HOUSE MT	TN						
	MOUNTAIN CITY	TN						
	NASHVILLE	TN						
	ARLINGTON	VA						
	KINGSTON/LICK KB	WV	1.89 /5.49					
	MARTINEZ*	GA						
	VIENNA	GA						
	FRNKLN/COWEE BLD	NC						
	RALEIGH	NC						
	ROCKY RD/WALLACE	SC						
	MCINNVL/SHT MT	TN						
	MEMPHIS	VA						
	BLUEFIELD	TN						
	BLUEFIELD	WV						
	GREEN MT	NC	1.83 /5.54			6.12 /6.72		
	MARTIN	GA	5.625/6.025			6.13 /6.73		
	HAPEVILLE	TN	7.63 /6.03					
	BROWNSVILLE	GA	5.655/6.055					
	FAYETTEVILLE	TN	6.585/6.085			6.13 /6.73		
	WAVERLY	TN						
	PULASKI	TN	5.775/6.175					
	HAMILTON	GA	5.835/6.235					
	DAMRON MTN*	EKY	7.87 /6.27					
	HARTWELL*	GA	5.895/6.295					
	COVINGTON	GA	5.925/6.325					
	COLUMBUS	GA	6.01 /6.61					
	WARNER ROBINS	NC						
	GREENSBORO	GA						
	NEW BERN	NC						
	CHELSEA	SC						
	GRNVLE/CSRS HD	SC	6.145/6.745					
	MYRTLE BEACH	SC						
	CHATTANOOGA	TN						
	NASHVILLE	VA	6.16 /6.76					
	BROMLEY MT	VA						
	CHESAPEAKE	VA						
	LYNCHBURG	VA						
	SPENCER	WV						
	LAURINBURG	NC	6.025/6.625					
	NEW MARKET	VA						
	ATLANTA	GA	6.04 /6.64					
	CARROLLTON	GA						
	WAYCROSS	GA						
	HENDERSONVILLE	NC						
	RALEIGH	NC						
	WINSTON-SALEM	NC						
	SUMTER	SC						
	CROSSVILLE	TN						
	MADISON	TN	6.175/6.775					
	MEMPHIS	TN						
	FINCASTLE	VA						
	MARION	VA	6.19 /6.79					
	RICHMOND	VA						
	HUNTINGTON	WV						
	CONCORD/KANNAP.	NC						
	ALEXANDRIA	VA						
	ALTAVISTA	GA						
	MACON	GA						
	HAZARD	EKY						
	GAINESVILLE*	GA						
	JESUP	GA						
	BURLINGTON	NC						
	FOREST CITY	NC						
	BRISTOL	TN						
	COOKEVILLE	TN						
	LAFOLETTE/WMT	TN	6.205/6.805					
	NASHVILLE	TN						
	BARREN SPRINGS	VA	7.405/6.805					
	BRISTOL	VA	6.22 /6.82					
	LEXINGTON	VA						
	WILLIAMSBURG	VA						
	RAVENSWOOD	WV						
	ADAIRSVILLE	GA	6.22 /6.82					
	GRIFTON	NC						
	STATESVILLE	NC						
	NEWBERRY	SC						
	VIENNA	VA						
	ALBANY	GA						
	JASPER	GA						
	MILLEDGEVILLE	GA						
	SAVANNAH	GA						
	DUNN	NC	6.235/6.835					
	GREENVILLE	SC						
	LANCASTER	SC						
	CHATTANOOGA	TN						
	FRASER	TN	7.255/6.835					
	MANCHESTER	TN	6.25 /6.85					
	MEMPHIS	TN						
	UNION CITY	TN						
	DANVILLE/WHT OAK	VA						
	DUFFLD/POWLL MT	VA						
	NORFOLK	VA						
	STAUNTON	VA						
	RAVENSWOOD	WV						
	RINGGOLD	GA	6.115/6.715					
	SPRING LAKE	NC						
	BLACKSBURG	VA						
	STERLING	VA						

REPEATERS BY FREQUENCY CONTINUED

6.325/6.925	FARMVILLE VA JONESVILLE VA MT. LK/BALD KNB VA TYSONS CORNER VA COTTAGEVILLE WV FAIRMONT WV MCMEECHEN WV ROCK HILL SC CHARLOTTEVILLE VA DANVILLE(DCC) VA ASHLAND EK1 AUGUSTA* GA ROME GA WRIGHTSVILLE GA BURGAW NC CHARLOTTE NC DURHAM NC MANTEO NC MT AIRY-RTTY NC COLUMBIA SC GREER SC KNOXVILLE TN MEMPHIS TN NASHVILLE TN HAMPTON VA RICHMOND VA ROANOKE VA NEW MARTINSVILLE WV RICHWOOD WV WEIRTON WV OLD FORT NC ROCKINGHAM NC JUMPING BRANCH WV ATLANTA GA SAVANNAH* GA MT AIRY NC SMITHFIELD NC ANDERSON SC FLORENCE SC ALTAMONT TN KINGSPT/BAYS MT TN MEDINA TN OAK RIDGE TN MANASSAS VA VIRGINIA BEACH VA LOGAN WV PARKERSBURG WV PRESTON GA ALBEMARLE NC DILLSBORO NC ROANOKE/POOR MT VA ATLANTA GA LAGRANGE GA HIGH POINT NC JACKSONVILLE SC MARION NC PICKENS SC MEMPHIS TN SUFFOLK VA ST ALBANS WV ELKHORN CITY EK1 HIGH POINT NC BLOUNTVILLE TN CHATT/SIGNAL MT TN CLARK*ILLE TN HAYSJ VA TEKA ALTA WV CHARLOTTE NC SUMTER SC NASHVILLE TN FREDRICKSBURG VA ERWIN NC ROCK HILL SC FRAYSER TN LEXINGTON VA DEWITT VA GREENSBORO NC ROANOKE RAPIDS NC MYRTLE BEACH, N SC FAYETTEVILLE TN MEMPHIS TN MORRISTOWN TN WAYNESBORO VA MULLENS WV ST MARYS/BENS R WV HOPE MILLS NC ROBBINSVILLE NC YOUNGVILLE NC ARLINGTON VA METER GA STATSVL/ASBRY MT NC RADFORD VA STAUNTON VA VIRGINIA BEACH VA	6.06 /7.06 6.46 /7.06 7.66 /7.06 7.66 /7.06 6.475/7.075 7.675/7.075 7.69 /7.09 7.70 /7.10 7.705/7.105 6.09 /7.11 7.72 /7.12 7.735/7.135 7.75 /7.15 7.765/7.165 7.78 /7.18 7.78 /7.18 7.795/7.195 7.81 /7.21 7.825/7.225 7.84 /7.24	MADISON WV COHUTTA-RTTY GA CHARLOTTE NC ELIZABETH CITY TN MEMPHIS NC SOUTH BOSTON VA PRINCETON WV MACON GA THOMASVILLE GA MACO NC SUMTER SC GREENEVILLE TN SHELBYVILLE TN CHESTER VA POINT PLEASANT WV BURLINGTON NC BURLINGTON NC GOOSE CREEK SC KNOXVILLE TN WAYNSBR/AFONT MT VA GREENVL/ESTN NC NC ORANGEBURG SC SPARTANBURG SC MEMPHIS TN SPARTA/BON AIR TN GALAX/BRIRP MT VA BLAIRSVILLE GA MARION/OLD FORT NC MONROE/UCARS NC NASHVILLE TN BEDFORD VA LOGAN WV AUGUSTA* GA CEDARTOWN GA GAST/SPCR MT NC ROCKY MOUNT NC MYRTLE BEACH SC COLUMBIA TN MEMPHIS TN OAK RIDGE TN CULPEPPER VA BRIDGEPORT WV DUNBAR WV DALTON* GA BREVARD/TRNS CTY NC FRIES VA RICHMOND VA CUMMING GA MORGANTON NC RALEIGH NC SIMPSONVILLE SC MEMPHIS TN NASHVILLE TN OAK RIDGE TN TAZEWELL VA MCMEECHEN WV ST ALBANS/COAL WV HIGH POINT NC GREENWOOD SC NEWPORT NEWS VA WARRENTON VA AUGUSTA* GA BALDWIN GA SANFORD NC WILMINGTON NC CAROWINDS SC GOOSE CREEK SC CLEVELAND TN MEMPHIS TN NASHVILLE TN DUBLIN VA PETERSBURG VA LEON WV ATLANTA GA LAKE TOXAWAY NC LYNCHBURG VA ROSSVILLE GA STATESBORO GA GREENSBORO NC WHITEVILLE NC LITTLE MT. SC COKEVILLE TN JACKSON TN MCLEAN VA WISE/HIGH KNOB VA HILLSBOROUGH NC MORRISTOWN TN YORKTOWN VA IRKINTON GA CARTHAGE NC EDEN/MAYODAN NC FOREST CITY NC FRANKLIN NC HILTON HEAD SC	7.855/7.255 7.87 /7.27 7.885/7.285 7.885/7.285 7.90 /7.30 7.915/7.315 7.92 /7.32 7.93 /7.33 7.945/7.345 7.95 /7.35 7.96 /7.36 7.975/7.375 7.99 /7.39 7.99 /7.39 6.43 /7.03 6.445/7.045 7.645/7.045 7.075/7.675 7.135/7.735 7.21 /7.81	LANCASTER SC PROSPERITY SC GALLATIN TN MEMPHIS TN PETERSBURG VA WOODBRIE VA ATLANTA GA ASHEBORO NC HENDSVL/STONY MT NC PARKSLEY VA MARTINSBURG WV AMERICUS GA BUFORD GA BENSON NC WAYNESVILLE NC CHARLSTN/LDSN SC SENECA/LONG MT SC GALLATIN TN JOHNSON CITY TN MEMPHIS TN GUM SPRING VA SCOTT DEPOT WV ROCKY SPUR SC MARTINSVILLE VA SVR CRK/MT ALTO GA JACKSONVILLE NC TUCKASEGEE NC AIKEN SC CHARLESTON SC KNOXVILLE TN MEMPHIS TN NASHVILLE TN BLUEMONT VA CLIFTON FORGE VA FRANKLIN VA HUNTINGTON WV UNION CROSS NC CENTERVILLE TN ALEXANDRIA VA GRUNDY VA LAGRANGE GA TOCCOA* GA FAYVILLE/FT BRAGG NC LENOIR/HIBRITN NC COLUMBIA SC COVINGTON TN CROSSVILLE TN NASHVILLE TN LEXNGTN/COLE MT VA WARSAW VA SHELBY NC WASHINGTON NC HENDERSOINVILLE TN GATE CITY VA FRANKLIN WV DANVILLE VA DOUGLASVILLE GA DUBLIN GA BOONE NC GREENVILLE NC LUMBERTON NC COLUMBIA SC KNOXVILLE TN MEMPHIS TN PARIS TN CHESTERFIELD TN BURNSVILLE TN HILLSVILLE NC GEORGETOWN SC LYNCHBURG VA NEWPORT NEWS VA GRAFTON WV ST ALBANS WV JENKINS KY THOMASTON GA CHARLOTTE NC EDEN/STONEVILLE NC SMITHFIELD NC LEXINGTON SC DAYTON/RHEA CTY TN GALLATIN TN MEMPHIS TN MADISON VA PETERSBURG VA MONTGOMERY WV PARKERSBURG WV GRIFFIN GA CHARLOTTE NC MEMPHIS TN CLEVELAND TN WARNER ROBINS GA BUFORD GA VALDOSTA GA CHERAW SC ALAMO TN CONYERS GA	7.225/7.825 7.285/7.885 7.30 /7.90 7.315/7.915 6.085/7.955 7.375/7.975 5.23 /ET 220 MHZ 2.30 /3.90 2.32 /3.92 2.34 /3.94 2.36 /3.96 2.38 /3.98 2.40 /4.00 2.42 /4.02 2.46 /4.06 2.48 /4.08 2.50 /4.10 2.52 /4.12 2.54 /4.14 2.56 /4.16 2.62 /4.22 2.64 /4.24 2.70 /4.30 2.74 /4.34 2.80 /4.40 2.86 /4.46 2.90 /4.50 2.94 /4.54 3.00 /4.60 3.04 /4.64 3.06 /4.66 3.08 /4.68 3.10 /4.70 3.14 /4.74 3.16 /4.76 3.18 /4.78 3.20 /4.80 3.22 /4.82 3.28 /4.88 3.30 /4.90 3.32 /4.92 3.34 /4.94 3.36 /4.96 3.38 /4.98	CLOUDLAND GA ASHBURN GA BIRMINGHAM(ALA) TN ROME GA MONROE NC DALTON* GA FORSYTH GA MORGANTOWN WV ATHENS* GA GREENVILLE SC HAMPTON VA COLUMBIA SC HERMITAGE TN HIGH POINT NC CANTON GA ASHVL/MT PISGAH NC HILLSBOROUGH NC CLARKSVILLE TN MEMPHIS NC ROCKY MOUNT NC LINWOOD NC LOCUST TN LOUISIANA TN PETERSBURG VA FAYETTEVILLE NC HICKORY NC NASHVILLE TN EASLEY/SASFRS MT SC NASHVILLE TN FAIRFAX VA KENNESAW GA PICKENS/CSRS HD SC FRANKLIN TN HUNTINGTON WV LENOIR/HIBRITN NC NASHVILLE TN CANTON/CHBRS MT NC STATESVILLE NC FRIES VA CHARLOTTE NC KNOXVILLE TN KNOXVILLE TN MT MITCHELL NC ASHEVILLE NC RALEIGH NC WINSTON-SALEM NC CANTON GA CHARLOTTE NC WSTFLD/SAUTN MT NC KINGSTON/LICK KB WV SALISBURY NC DAN/WHT OAK VA CHATTANOOGA TN MORGANTON NC ATLANTA GA GIBSONVILLE NC KNOXVILLE TN ALEXANDRIA VA WSTFLD/SAUTN MT NC COLUMBIA SC CHATT/SIGNAL MT TN CHAPEL HILL NC KENNESAW GA GREENEVILLE TN ROANOKE/POOR MTN VA CHERRYVILLE NC GOLDSBORO NC FALLS CHURCH VA
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**CVRA-
SERA
DISTRICTS
INCLUDE
VIRGINIA
N CAROLINA
S CAROLINA
TENNESSEE
WEST VIRGINIA**

CVRA-SERA REPEATER INDEX LISTINGS BY CITY-BY-STATE

NORTH CAROLINA REPEATERS

2 METERS

AHOSKIE	WB4YNF	144.53	145.13	D A
AHOSKIE	WA4ZGQ	146.31	146.91	N PA
ALBEMARLE	K40GB	146.385	146.985	
ASHEBORO	WD4A1B	147.855	147.255	PAL
ASHEVILLE	WA4QCO	146.235	146.835	A
ASHVL/MT PISGAH	WA4BVM	146.16	146.76	
ASHVL/SPIVEY MT	W4MOE	146.31	146.91	PA
BENSON	WR4ARL	147.87	147.27	N PA
BOONE	WA4KDB	147.96	147.36	
BREWARD/TRNS CTY	W4EHV	147.735	147.135	
BURGAW	K4LZY	146.34	146.94	
BURLINGTON	WB4ZIN	146.07	146.67	A
BURLINGTON	W4VGZ	146.475	147.075	N EA
BURLINGTON	WA4HBQ	147.675	147.075	N EA
BURNSVILLE	WA4LLR	147.975	147.375	A
CANTON/CHBRS MT	WB40KG	144.75	145.35	D
CARTHAGE	W4NTW	147.84	147.24	EA
CHARLOTTE	KE4ZC	144.57	145.17	
CHARLOTTE	W4BFB	144.63	145.23	
CHARLOTTE	WD4JHO	144.69	145.29	
CHARLOTTE	WB4HTR	144.75	145.35	N
CHARLOTTE	KA4HNP	145.00	147.50	N NB
CHARLOTTE	W4BFB	146.175	146.775	R
CHARLOTTE	WR4AEU	146.34	146.94	A
CHARLOTTE	WR4ALO	146.46	147.06	N A
CHARLOTTE	WB4KPF	147.615	147.015	D PA
CHARLOTTE	WD4PLY	147.99	147.39	N
COLUMBIA	K4ITL	144.61	145.21	N C
CONCORD/KANNAP.	K4CEB	146.055	146.655	A
CROWDERS MT	WD4PLY	144.85	145.45	N
DILLSBORO	WB4NSS	146.385	146.985	D
DUNN	WB4FXM	146.10	146.70	PA
DURHAM	WA4BFT	146.34	146.94	N A
EDEN/MAYODAN	WA4ACP	147.84	147.24	N
EDEN/STONEVILLE	WA4QBG	147.99	147.39	
ELIZABETH CITY	WA4VTX	146.46	147.06	N A
ELIZABETH TOWN	N4DHW	146.175	146.775	N
ERWIN	WR4ALY	146.43	147.03	N
FAYETTEVILLE	N4EWG	146.205	146.805	
FAYETTEVILLE	WB4ZFZ	146.31	146.91	
FAYVILLE/FT BRAGG	W4LPL	147.93	147.33	D
FISHERS PK/WS	W4HKB	144.87	145.47	P
FOREST CITY	W4TMT	146.07	146.67	N A
FOREST CITY	WA4BKU	147.84	147.24	N
FRANKLIN	W4GHZ	147.84	147.24	
FRNKLN/COWEE BLD	N4AC	144.89	145.49	
GAST/SPCR MT	W4REW	147.72	147.12	A
GASTONIA	K4ZFD	146.205	146.805	N L
GOLDSBORO	K4CYP	146.25	146.85	A
GREEN MT	K4ITL	144.83	145.43	L
GREENSBORO	K4SNI	146.01	146.61	A
GREENSBORO	WA4MSS	146.16	146.76	
GREENSBORO	WB4DYN	146.265	146.865	N
GREENSBORO	WD4IPZ	147.63	147.03	PA
GREENSBORO	W4BUZ	147.81	147.21	N
GREENVILLE	WA4DAN	144.75	145.35	L
GREENVILLE	W4AMC	147.96	147.36	
GREENVL/ESTN NC	W4GDF	147.69	147.09	
GRIFFIN	W4NBR	146.085	146.685	
HENDERSONVILLE	WB4YAO	146.04	146.64	N L
HENDSVL/PINCK MT	WA4KNI	144.67	145.27	A
HENDSVL/STONY MT	WA4KNI	147.855	147.255	A
HICKORY/BRT. MT	WR4ACM	146.25	146.85	N
HIGH POINT	N4XO	144.81	145.41	N
HIGH POINT	WB4IKY	146.40	147.00	LA
HIGH POINT	WB4IKY	147.60	147.00	LA
HIGH POINT	KA4DHP	147.765	147.165	PA
HILLSBOROUGH	WA4WTX	147.825	147.225	A

HILLVILLE	WD4BTS	147.975	147.375	N A
HOPE MILLS	WB4TRW	146.445	147.045	N
JACKSONVILLE	WD4FVO	146.40	147.00	PA
JACKSONVILLE	WR4ATW	147.90	147.30	N
LAKE TOXAWAY	K4MSK	147.795	147.195	EA
LAURINBURG	K4QWK	146.025	146.625	A
LENOIR/HIBRITN	KN4K	147.93	147.33	
LEWISVILLE	N4GGK	144.61	145.21	PA
LEXINGTON	K4IZM	146.31	146.91	PA
LILLINGTON	WA4FKI	144.87	145.47	N
LUMBERTON	WB4MDI	147.96	147.36	
MACO	WA4LED	147.66	147.06	
MADISON	KA4YFF	146.295	146.895	R
MAGGIE VALLEY	W4HCY	147.405	146.805	
MANTEO	W4PCN	146.34	146.94	PA
MARION/OLD FORT	KA4DEC	147.705	147.105	
MAYODAN	N4GWZ	144.55	145.15	N C
MONROE	K4BGU	147.30	147.90	N NB
MONROE/UCARS	K4JCK	147.705	147.105	A
MOOREVILLE	N4GGK	144.75	145.35	N VC
MORENTN/HI PK	WB4UDS	144.55	145.15	D
MORGANTON	K4RP	147.75	147.15	
MT AIRY	WA4ZAS	146.37	146.97	EA
MT AIRY-RTTY	WA4ZAS	146.34	146.94	R
MT AIRY/TRNR MT	KD4J	144.73	145.33	
MT MITCHELL	WA4BVV	144.59	145.19	
N. WILKESBORO	N4AGN	144.77	145.37	LPA
NAGS HEAD/BODIE	KE4PB	146.235	146.835	N
NEW BERN	WD4JMS	146.01	146.61	A
NEWPORT	K4GRW	144.85	145.45	AL
OLD FORT	KA4ROZ	146.355	146.955	N C
OXFORD	N4EKK	144.57	145.17	T
RALEIGH	N4BEA	144.67	145.27	PAL
RALEIGH	N4BEA	144.89	145.49	PA
RALEIGH	W4DW	146.04	146.64	A
RALEIGH	K4BWC	146.13	146.73	A
RALEIGH	K4ITL	146.28	146.88	
RALEIGH	K4ITL	147.75	147.15	PA
REIDSVILLE	K4YFT	146.25	146.85	
ROANOKE RAPIDS	K4PUV	147.63	147.03	
ROARING GAP	WB4PZA	146.22	146.82	
ROBBINSVILLE	WD4CNS	146.445	147.045	
ROCKINGHAM	WA4ULA	146.355	146.955	N
ROCKY MOUNT	WB4WAA	147.72	147.12	A
SALISBURY	W4EXU	146.13	146.73	
SANFORD	WB4EJJ	147.78	147.18	A
SAURATOWN MT	N4HVQ	144.51	145.11	L
SAURATOWN MT	WB4IKY	146.19	146.79	A
SHELBY	WD4DJA	146.28	146.88	D
SHELBY	WD4DJA	147.945	147.345	A
SMITHFIELD	KD4JO	146.37	146.97	A
SMITHFIELD	W4MKL	147.99	147.39	D PA
SPRING LAKE	WB4KDC	146.115	146.715	N
STATESVILLE	AI4O	146.085	146.685	PA
STATSVL/ASBRY MT	WA4JRL	147.645	147.045	
SWANSBORO	K04S	146.16	146.76	
TRENTON	K4ITL	144.71	145.31	N C
TUCKASEGEE	W80MV	147.90	147.30	N
UNION CROSS	WA4RBW	147.915	147.315	
WADESBORO	W4USH	146.235	146.835	N
WASHINGTON	WA4TEP	147.945	147.345	N C
WAXHAW	WB400A	146.295	146.895	D PA
WAXHAW	WA4ZRS	147.465	146.865	A
WAYNESVILLE	N4SM	147.87	147.27	PA
WHITEVILLE	K4MSD	147.81	147.21	
WILLIAMSTON	KA4KNU	144.81	145.41	
WILMINGTON	W4VKN	146.13	146.73	EA
WILMINGTON	K4GMP	146.22	146.82	EA
WILMINGTON	WD4HMA	147.78	147.18	N C
WILSON	WB4THL	146.16	146.76	
WINSTON-SALEM	WA4GIC	146.04	146.64	A
YOUNGSVILLE	WD4AUI	146.445	147.045	N

220 MHZ

ASHEVILLE	NC4N	223.00	224.60	
ASHVL/MT PISGAH	WA4BVW	222.34	223.94	
CANTON/CHBRS MT	WB40KG	222.64	224.24	D C
CHAPEL HILL	K2MZ	223.32	224.92	N C
CHARLOTTE	KE4ZC	222.80	224.40	
CHARLOTTE	WB4KPF	223.08	224.68	D LA
CHERRYVILLE	WB4UDS	223.36	224.96	D
FAYETTEVILLE	W4EHF	222.42	224.02	D
GIBSONVILLE	WB4IKY	223.22	224.82	R
GOLDSBORO	WD40YO	223.36	224.96	N
HICKORY	WR4ACM	222.42	224.02	N
HIGH POINT	K4AZA	222.32	223.92	LPA
HILLSBOROUGH	WA4WTX	222.34	223.94	L
LENOIR/HIBRITN	KN4K	222.56	224.16	
LINWOOD	KA4HUV	222.38	223.98	N
LOCUST	WA4ZIA	222.40	224.00	PA
MORGANTON	WB4PML	223.20	224.80	D
MT MITCHELL	WA4BVW	222.94	224.54	
RALEIGH	WA4PEN	223.04	224.64	N
ROCKY MOUNT	KA4DAP	222.36	223.96	N
SALISBURY	W4EXU	223.16	224.76	
STATESVILLE	WA4PVI	222.70	224.30	N
WINSTON-SALEM	WA4YHH	223.04	224.64	N
WSTFLD/SAUTN MT	W4RXG	223.10	224.70	R
WSTFLD/SAUTN MT	W4RXG	223.28	224.88	

440 MHZ

AHOSKIE	WB4YNF	449.20	444.20	N C
ASHVL/MT PISGAH	WA4COS	449.90	444.90	N
CANTON/CHBRS MT	WB40KG	449.80	444.80	D C
CHAPEL HILL	K2MZ	448.875	443.875	N C
CHARLOTTE	WB4FB	444.60	449.60	
CHARLOTTE	WR4ALO	449.85	444.85	N
FAYETTEVILLE	KB4ZW	449.40	444.40	
GREENSBORO	WB4HZI	449.90	444.90	N
GREENVILLE	AI4J	449.80	444.80	N
HIGH POINT	K4AZA	447.90	442.90	L
HILLSBOROUGH	WA4WTX	449.10	444.10	PA
LOCUST	WA4LBT	448.70	443.70	
MT MITCHELL	N4DWU	448.65	443.65	C
ROCKY MOUNT	N4JEH	449.70	444.70	C
WILKESBORO	KC4XE	448.55	443.55	L
WILMINGTON	KB4BR	449.70	444.70	
WILSON	NE4J	449.90	444.90	N C
WIN-SAL/SAUTN MT	WB4KQN	448.00	443.00	D LC

10 METERS

CHAPEL HILL	K2MZ	29.54	29.64	N C
WILKESBORO	KC4XE	29.52	29.62	L

6 METERS

CARY	WR4AVP	52.35	53.35	N NB
CHARLOTTE	KE4ZC	52.03	53.03	
HENDERSONVILLE	WB4YAO	52.01	53.01	N
HENDERSONVILLE	WB4YAO	52.525	52.525	N NB
HICKORY	WR4ACM	52.47	53.47	N
NEWPORT	K4GRW	52.01	53.01	N P
ROANOKE RAPIDS	K4PUV	52.03	53.03	C
STATESVILLE	WA4WRS	52.67	53.67	N

WEST VIRGINIA REPEATERS

2 METERS

ALDERSON	WA8AVZ	146.13	146.73	N
BECKLEY	KC8FW	144.77	145.37	N LA
BKLY/FLAT TOP MT	K8BO	146.25	146.85	A
BLUEFIELD	W8MOP	144.89	145.49	A
BOLT MT	KD8X	144.57	145.17	N L
BRIDGEPORT	K8VNY	147.72	147.12	EAL
BUCKHANNON	K8NYH	146.25	146.85	N
CHARLESTON	WB8IFS	146.22	146.82	N
CHARLESTON	WB8CQV	146.28	146.88	N
CLARKSBURG	WB8ZVS	146.22	146.82	

CLARKSBURG	WB8DTM	146.50	52.525	N NB
COTTAGEVILLE	WR8AKV	146.31	146.91	N
DUNBAR	K8VKI	147.72	147.12	EA
FAIRMONT	WBSP	146.31	146.91	
FRANKLIN	WR3UA	147.945	147.345	
GRAFTON	K8VNY	147.975	147.375	L
HUNTINGTON	WB8FEQ	144.61	145.21	N P
HUNTINGTON	WB8EZR	146.04	146.64	
HUNTINGTON	WBVA	146.16	146.76	A
HUNTINGTON	KA8BKX	147.90	147.30	N
JUMPING BRANCH	WD8OY	146.355	146.955	N
KINGSTON/LICK KB	W8FG	144.87	145.47	
LAYLAND/MANN MT	N8BZS	144.71	145.31	N L
LEON	WB8NMT	147.78	147.18	N
LIBERTY	K8SLI	144.81	145.41	N P
LOGAN	WB8KWC	144.63	145.23	D
LOGAN	WA8ZLR	146.09	147.11	N ONB
LOGAN	WD8RV	146.37	146.97	N
MADISON	KA8JYR	146.06	147.06	N NB
MARMET/BEE MT	N8DBN	144.55	145.15	N
MARTINSBURG	WA8FSE	144.55	145.15	M
MARTINSBURG	WB8VUZ	147.855	147.255	M
MCMECHEN	WA8ULB	146.31	146.91	
MCMECHEN	N8CFX	147.75	147.15	
MONTGOMERY	WB8VUY	147.99	147.39	N
MORGANTOWN	K8LG	144.83	145.43	D L
MORGANTOWN	WB8YZT	146.085	147.955	N NB
MORGANTOWN	WB8CUL	146.16	146.76	LPA
MULLENS	KC8BT	147.63	147.03	N LA
NEW MARTINSVILLE	WR8ABY	146.34	146.94	N
OAK HILL	W8GH	146.19	146.79	EA
PARKERSBURG	WA8CRW	146.37	146.97	PA
PARKERSBURG	WB8AXY	147.99	147.39	
PARSONS	K8VNY	144.73	145.33	EAL
PIE HORSE MT	N8APH	144.67	145.27	N A
POINT PLEASANT	W8KNM	147.66	147.06	N
PRINCETON	KA8PNC	146.46	147.06	A
RAVENSWOOD	WD8JNU	146.07	146.67	
RAVENSWOOD	WD8JNU	146.10	146.70	R
RICHWOOD	K8VKB	146.34	146.94	
SALT ROCK	WD8MCR	144.51	145.11	N
SCOTT DEPOT	K8SLI	147.87	147.27	N A
SPENCER	WA8SAK	146.01	146.61	N
ST ALBANS	WB8GDY	146.40	147.00	
ST ALBANS	K8BCH	147.975	147.375	R
ST ALBANS/COAL	WB8KAD	146.12	146.72	N ANB
ST ALBANS/COAL	WB8OEC	147.75	147.15	N
ST MARYS/BENS R	WB8ECC	147.63	147.03	N L
TERRA ALTA	WB8PHU	147.60	147.00	PA
WEIRTON	KC8JN	146.34	146.94	A
WELCH	WB8SXZ	144.85	145.45	D
WESTON	WB8PT	144.79	145.39	N
WHEELING	WB8YFX	144.59	145.19	
WHEELING	WB8JDH	146.16	146.76	N

6 METERS

ST MARYS/BENS R	WD8RET	52.17	53.17	N L
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220 MHZ

HUNTINGTON	KA8BKX	222.54	224.14	N
KINGSTON/LICK KB	W8FG	223.14	224.74	D

440 MHZ

KINGSTON/LICK KB	KA8EMX	449.80	444.80	N
MORGANTOWN	K8LG	449.70	444.70	D L
MORGANTOWN	WB8CUL	449.80	444.80	PA

CVRA REPEATER SYMBOLS

Unmarked in First Code	RB	Remote Base System
column-Full CVRA Members	T	Tone Access Repeater
N NON Member CVRA	L	Linked Repeater
NB Not On Band Plan Freq.	R	Radioteletype Rptr.
M T-MARC Repeater	V	Television (SS or ATV)
A Open Autopatch	P	Proposed Repeater
PA Private Autopatch	C	Under Construction
EA Emerg. Autopatch	O	Off Air Temporarily

VIRGINIA REPEATERS

2 METERS

ALEXANDRIA	N4FSC	144.71	145.31	M	PA
ALEXANDRIA	WD4PDP	146.055	146.655	M	PA
ALEXANDRIA	W4HFH	147.915	147.315	M	L
ALTAVISTA	WA4ISI	146.055	146.655		PA
ARLINGTON	N4EFJ	144.87	145.47	M	
ARLINGTON	WA4YVM	146.445	147.045	M	T
BARREN SPRINGS	K4HZS	146.07	146.67		
BEDFORD	WB4JBJ	147.705	147.105		LR
BLACKSBURG	AB9I	146.115	146.715		
BLAND	N4AZJ	144.75	145.35	N	L
BLUEFIELD	W8MOP	144.89	145.49	A	
BLUEMONT	WA4TSC	147.90	147.30		
BRISTOL	K4ILW	146.07	146.67	N	A
BRISTOL	WDECYZ	146.28	146.88	D	
BROMLEY MT	WR4ATJ	146.01	146.61	N	
CHARLOTTESVILLE	WA4TFZ	146.16	146.76		
CHARLOTTESVILLE	WA4TFZ	146.325	146.925		
CHESAPEAKE	K4NDH	144.69	145.29		EA
CHESAPEAKE	N4GSP	146.01	146.61		
CHESAPEAKE	N4SD	146.19	146.79	A	
CHESTER	WA4ECM	147.66	147.06	PA	
CHESTERFIELD	KA4CBB	147.96	147.36	PA	
CLIFTON FORGE	K4QEL	147.90	147.30	N	
COVINGTON	WA4HTI	146.22	146.82	N	
CULPEPPER	N4FAF	147.72	147.12	M	
DANVILLE	K4YZR	147.95	147.35	N	NB
DANVILLE(DCC)	WB4GJG	146.325	146.925		
DANVILLE/WHT OAK	K4WQS	146.10	146.70		
DEWITT	WA4Z0Z	146.43	147.03	N	
DUBLIN	KT4Z	147.78	147.18		PA
DUFFLD/POWLL MT	KA4BHH	146.10	146.70		
FAIRFAX	W4LBL	146.19	146.79	M	PA
FALLS CHURCH	WA4AQD	144.75	145.35	M	T
FARMVILLE	WB4NWP	146.31	146.91	N	A
FINCASTLE	W4WIC	146.04	146.64		
FOREST	K4STE	146.16	146.76	A	
FRANKLIN	K4SPS	147.90	147.30	N	PA
FREDRICKSBURG	WB4LNT	147.615	147.015		
FRIES	WA4DFH	147.735	147.135	A	
GALAX	WA4ZIV	144.79	145.39	N	
GALAX/BRIRP MT	N4VL	147.69	147.09		
GALAX/LKOUT MT	N4VL	144.53	145.13		
GATE CITY	WD4GTA	147.945	147.345	N	
GRUNDY	K4HWQ	147.92	147.32	N	ANB
GUM SPRING	KB4GX	147.87	147.27		
HAMPTON	K4UMI	145.23	PKET	N	
HAMPTON	K4DHO	146.13	146.73		
HAMPTON	K4UMI	146.34	146.94	N	T
HAYSI	WB4WAU	147.60	147.00		
HAZEL MT	WD4CYZ	146.235	146.835	N	
HILLSVILLE	WD4BTJ	147.975	147.375	A	
JONESVILLE	WA4OVC	146.31	146.91		
LEXINGTON	WA4WBD	146.07	146.67	A	
LEXNGTN/COLE MT	K4PQD	147.93	147.33	D	
LYNCHBURG	W4WWQ	146.01	146.61	N	
LYNCHBURG	AB4M	147.43	144.93	NB	
LYNCHBURG	WA4RTS	147.795	147.195		
LYNCHBURG	W4QSH	147.975	147.375	N	PA
MADISON	N4AJO	147.99	147.39	M	
MANASSAS	WD4JCE	144.67	145.27	M	R
MANASSAS	WA4FPM	146.37	146.97		PA
MARION	N4BIW	146.04	146.64		
MARTINSVILLE	AB4L	147.885	147.285		
MCLEAN	WD4IWG	147.81	147.21	M	R
MT. LK/BALD KNB	K4TUE	146.31	146.91		
NEW MARKET	WB4DAK	146.025	146.625		
NEWPORT NEWS	WB4CTF	147.765	147.165	PA	
NEWPORT NEWS	WA40HX	147.975	147.375	PA	
NORFOLK	NE4D	146.10	146.70		
PARKSLEY	WA4TVS	147.855	147.255	EA	
PETERSBURG	K4SII	147.78	147.18	N	
PETERSBURG	K4ARO	147.84	147.24		TPA
PETERSBURG	K4ARO	147.99	147.39		

PORTSMOUTH	N4PR	146.25	146.85		
RADFORD	KC4WA	147.645	147.045		
RICHMOND	K4YPE	144.51	145.11	N	
RICHMOND	W4SQT	144.83	145.43		
RICHMOND	WB4QOEY	146.04	146.64	N	
RICHMOND	WA4ZBE	146.28	146.88		PA
RICHMOND	W4ZA	146.34	146.94		T
RICHMOND	N4HB	147.735	147.135		
ROANOKE	WR4AHT	146.34	146.94	N	AO
ROANOKE/POOR MT	WB4QOJ	146.145	146.745		LPA
ROANOKE/POOR MT	W4CA	146.385	146.985		
SALEM	W4PDL	146.28	146.88	N	
SOUTH BOSTON	WD4LBM	146.46	147.06		
STAUNTON	W4XD	146.10	146.70		
STAUNTON	WA4ZBP	146.25	146.85		
STAUNTON	W4WRN	147.645	147.045	N	
STERLING	WA4TKE	146.115	146.715	M	
SUFFOLK	WR4AKS	146.40	147.00	N	PA
TAEWELL	WD4DZE	147.75	147.15	N	
TYSONS CORNER	WB4FMD	146.31	146.91	M	PA
VIENNA	K4HTA	146.085	146.685	M	
VIRGINIA BEACH	WA4KXV	146.37	146.97		PA
VIRGINIA BEACH	WA4SBC	147.645	147.045	N	
WARRENTON	WB4FJT	147.765	147.165	M	
WARSAW	WA4UAF	147.93	147.33		
WAYNESBORO	W4BLD	147.63	147.03		
WAYNSBR/AFTON MT	W4PNT	147.675	147.075		
WILLIAMSBURG	W4NTG	146.07	146.67		
WINCHESTER	W4RKC	146.22	146.82		
WISE/HIGH KNOB	K4AXO	147.81	147.21		
WOODBIDGE	WB4FQR	147.84	147.24	M	A
WYTHEVILLE	WA4EMS	146.175	146.775		
YORKTOWN	WD4SDC	147.825	147.225	N	

220 MHZ

ALEXANDRIA	WA4CCF	223.22	224.82	M	L
DAN/WHT OAK	K4QAK	223.16	224.76	N	
FAIRFAX	WB4YHD	222.50	224.10	M	L
FALLS CHURCH	N4CHP	223.38	224.98	M	PA
FRIES	WA4DFH	222.74	224.34	D	
PETERSBURG	K4ARO	222.40	224.00		
ROANOKE/POOR MTN	WB4DBB	223.34	224.94		

440 MHZ

ALBERTA	K4ARO	449.55	444.55		L
ALEXANDRIA	WR4AAG	439.25	426.27	M	VNB
ALEXANDRIA	W4HFH	449.60	444.60	M	NB
BLUMONT	WA4TSC	444.925	449.925		LNB
CHARLOTTESVILLE	WA4TFZ	449.25	444.25		
COVINGTON	WA4HTI	447.25	442.25	N	
FALLS CHURCH	WB8CRK	449.45	444.45	M	L
FINCASTLE	W4WIC	448.75	443.75		
HAMPTON	K4UMI	448.65	443.65	N	
LEXNGTN/COLE MT	K4PQD	449.15	444.15	D	
LYNCHBURG	WB4DBB	449.35	444.35		L
LYNCHBURG	K4HEX	449.50	444.50	N	RB
MANASSAS	WD4JCE	444.225	449.225	M	LNB
MANASSAS	WB3EAQ	448.30	443.80	M	
NORTHWEST/SE VA	K4R4K	448.80	443.80	N	
PETERSBURG	K4ARO	449.40	444.40		
PETERSBURG	K4ARO	449.85	444.85		
RICHMOND	N4HB	449.00	444.00	N	
RICHMOND	K4ARO	449.65	444.65		
ROANOKE	WR4AFE	447.75	442.75	N	
ROANOKE/POOR MT	W4CA	447.50	442.50		
SALUDA	WA4UAF	448.90	443.90	N	
SPRINGFIELD	AA4VA	449.15	444.15	M	
TYSONS CORNER	WB6GUS	448.50	443.50	M	
TYSONS CORNER	K4JYV	449.75	444.75	M	
VIRGINIA BEACH	WA4KXV	449.95	444.95		
WAYNESBORO	W4BLD	449.30	444.30		PA
WAYNSBR/AFTON MT	W4BLD	449.05	444.05		
WILLIAMSBURG	W4NTG	448.95	443.95	M	
WINCHESTER	W3CSG	447.00	442.00	M	
WOODBIDGE	WB4FQR	444.90	449.90	M	NB

10 METERS

STERLING	KD4DN	29.58	29.68	M P
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6 METERS

ABINGTON	WR4ATJ	52.01	53.01	M L
ALEXANDRIA	WA4CCF	52.13	53.13	M L
DANVILLE (DCC)	WB4GJG	52.13	53.13	
FAIRFAX	KA4DCS	52.58	52.48	M NB
LEXNGTN/COLE MT	K4PQD	52.01	53.01	D L
NORTN/HIGH KB	K4LSP	52.01	53.01	N
RICHMOND	WR4	52.09	53.09	N CNB
RICHMOND	KA4NNN	52.43	53.43	N
ROANOKE/POOR MT	WB4DBB	52.15	53.15	

SOUTH CAROLINA REPEATERS

2 METERS

AIKEN	N4ADM	147.90	147.30	
ANDERSON	N4SZ	146.37	146.97	PA
ANDSN/SASFRAS MT	W4FVV	146.19	146.79	
BAMBERG	WA4DFP	144.73	145.33	N
CAROWINDS	AA4SC	147.78	147.18	
CHARLESTON	WB4URP	144.65	145.25	N
CHARLESTON	K4ILT	146.16	146.76	N PA
CHARLESTON	W4IVE	146.19	146.79	N
CHARLESTON	K4LWS	147.90	147.30	A
CHARLSTN/LDSN	WB4LET	147.87	147.27	PA
CHELSEA	KB4GY	146.01	146.61	
CHERAW	KA4ABW	147.135	147.735	PA
COLUMBIA	K4AVU	146.28	146.88	
COLUMBIA	K4LNU	146.34	146.94	
COLUMBIA	WB4VLY	147.93	147.33	O
COLUMBIA	K4LNU	147.96	147.36	PA
DILLON/PEE DEE	NN4N	146.145	146.745	EA
FLORENCE	W4ULH	146.25	146.85	D
FLORENCE	WA4ISM	146.37	146.97	PA
FT JACKSON	WB4OCB	146.16	146.76	
GASTON	WB4NEP	144.61	145.21	PA
GEORGETOWN	WD4DMI	147.975	147.375	D
GOOSE CREEK	WD4NUN	147.675	147.075	A
GOOSE CREEK	W4NAT	147.78	147.18	N
GREENVILLE	W4AZT	146.10	146.70	A
GREENVILLE	K4LEO	147.375	147.975	N NB
GREENWOOD	WB4UGA	147.765	147.165	D PA
GREENWOOD/HODGES	KB4YF	144.53	145.13	
GREER	W4IQQ	146.34	146.94	N
GRNVLE/CSRS HD	W4NYK	146.01	146.61	
GRNVLE/PARIS MT	W4NYK	146.22	146.82	PA
HILTON HEAD	KB4GY	147.84	147.24	
INMAN	WD8OXE	144.87	145.47	
LANCASTER	W4PAX	146.10	146.70	
LANCASTER	WB4BGF	147.84	147.24	
LAURENS	KA4LBI	146.25	146.85	N A
LEXINGTON	WR4AGK	147.255	146.835	N NB
LEXINGTON	KA4FEC	147.99	147.39	
LITTLE MT.	K4AVU	147.81	147.21	
MARION	W4YLT	146.40	147.00	N EA
MYRTLE BEACH	WD4JMT	146.01	146.61	A
MYRTLE BEACH	WA4YGE	147.72	147.12	N
MYRTLE BEACH, N	WA4JYR	147.63	147.03	N PA
N. AUGUSTA	K4FKJ	146.13	146.73	
NEWBERRY	KB4CO	146.085	146.685	
ORANGEBURG	WR4AQY	147.69	147.09	N A
PICKENS	WB4YXZ	146.40	147.00	A
PROSPERITY	WB4OCB	147.84	147.24	
RCKY RD/WALLACE	KA4ABW	144.89	145.49	C
ROCK HILL	KA4RFA	144.71	145.31	N LPA
ROCK HILL	K4YTZ	146.325	146.925	PA
ROCK HILL	K4YTZ	146.43	147.03	PA
ROCKY SPUR	KS4I	147.885	147.285	
SENECA/LONG MT	WA4JRJ	147.87	147.27	N
SIMPSONVILLE	WA4LDP	146.13	146.73	
SIMPSONVILLE	WA4SDT	147.75	147.15	N R
SPARTANBURG	WD8OXE	147.69	147.09	PA
SUMTER	WS4P	146.04	146.64	

SUMTER	WA4UMU	147.615	147.015	A
SUMTER	W4VFR	147.66	147.06	N
WHITE HALL	W4BNZ	146.31	146.91	

220 MHZ

COLUMBIA	N4EOY	222.30	223.90	
COLUMBIA	N4EOY	223.30	224.90	RB
EASLEY/SASFRS MT	KJ4X	222.46	224.06	
PICKENS/CSRS HD	WB4QHF	222.54	224.14	PA

440 MHZ

CAESARS HEAD	WB4LZO	448.875	443.875	N
CHARLESTON	N4SC	449.10	444.509	N TNB
COLUMBIA	KC4YI	449.10	444.10	
ROCK HILL	KA4RFA	449.75	444.75	N LPA
SUMMERVILLE	WA4HNK	443.80	448.80	N NB

6 METERS

COPE	N4HSN	52.05	53.05	
PICKENS	WB4YXZ	52.41	53.41	C
PICKENS/CSRS HD	WB4QHF	52.525	RMT.BS	D CBR

TENNESSEE REPEATERS

2 METERS

ALAMO	WB4EDS	147.135	147.735	DN B
ALTAMONT	WR4AWN	146.37	146.97	N
ATHENS	WB4GRC	144.71	145.31	N
BENTON	K4SIR	144.85	145.45	N
BESSEMER (ALA)	N4AHN	144.55	145.15	NBL
BIRMINGHAM (ALA)	WD4BXA	147.285	147.885	A
BLOUNTVILLE	WA4KMG	147.60	147.00	D
BRISTOL	K4ILW	146.07	146.67	A
BRISTOL	WD4CYZ	146.28	146.88	D
BRISTOL/HLSTN MT	WR4ADO	146.16	146.76	N
BROWNSVILLE	WA4ABU	146.655	146.055	D NB
CENTERVILLE	WB4PZB	147.915	147.315	N
CHATT/SIGNAL MT	WA4ZOK	147.60	147.00	PA
CHATTANOOGA	K4VCM	144.69	145.29	
CHATTANOOGA	W4AM	144.73	145.33	N
CHATTANOOGA	KB4TZ	144.79	145.39	A
CHATTANOOGA	K4CMY	146.01	146.61	
CHATTANOOGA	AD4F	146.10	146.70	
CHATTANOOGA	W4DSK	146.19	146.79	A
CHATTANOOGA-RTTY	K4CMY	144.53	145.13	N
CLARKSVILLE	W4AM	147.60	147.00	N
CLEVELAND	WR4AQV	147.78	147.18	N
COLUMBIA	WR4AIX	147.72	147.12	N
COOKEVILLE	WA4UCE	146.07	146.67	N A
COOKEVILLE	N4WS	147.81	147.21	
COVINGTON	WA4YXW	147.93	147.33	N
CROSSVILLE	KE4RX	146.04	146.64	N
CROSSVILLE	W4CV	147.93	147.33	N
DAYTON/RHEA CTY	K4ZLA	147.99	147.39	N
DECATUR-PONE KB	WR4JC	144.55	145.15	
DYERSBURG	AA4HF	146.145	146.745	N
FAYETTEVILLE	KO4G	146.265	146.865	N
FAYETTEVILLE	W4NIQ	147.63	147.03	N
FISHERVILLE	N4DRL	144.65	145.25	A
FRANKLIN	WB4HCK	144.55	145.15	N RB
FRAYSER	W4UFT	146.10	146.70	N
FRAYSER	W4ZJM	146.43	147.03	N
GALLATIN	W4NIT	147.84	147.24	D PA
GALLATIN	WA4YQC	147.87	147.27	PA
GALLATIN	WB4DLQ	147.99	147.39	N
GREENEVILLE	N4TV	144.65	145.25	
GREENEVILLE	WB4TUO	144.81	145.41	
GREENEVILLE	KA4LYF	147.66	147.06	A
GTLBG/COVE MTN	WA4KJH	146.25	146.85	L
HENDERSONVILLE	WD4FFM	147.945	147.345	N
JACKSON	KF4SC	144.71	145.31	N
JACKSON	W4WKZ	147.81	147.21	N
JASPER	KA4LGN	144.59	145.19	"
JOHNSON CITY	WB4SQC	144.69	145.29	EA
JOHNSON CITY	WB4EHK	146.19	146.79	

JOHNSON CITY	KE4FH	147.87	147.27	A	PULASKI	KA4CCL	146.775	146.175	N NB
KINGSPT/BAYS MT	W4TRC	146.37	146.97	A	SAVANNAH	WB4DQU	146.31	146.91	N
KNOXVILLE	WB4JSD	144.51	145.11	R	SEVIERVILLE	N4CJX	144.67	145.27	EA
KNOXVILLE	K4KFD	144.61	145.21	N A	SHELBYVILLE	W4QEB	147.66	147.06	A
KNOXVILLE	WA4TEM	144.73	145.33	A	SHORT MTN	W4YXA	146.31	146.91	EA
KNOXVILLE	WA4GZE	144.77	145.37		SPARTA/BON AIR	W4BSA	147.69	147.09	A
KNOXVILLE	WB4GBI	144.83	145.43		STANTONVILLE	KA4OHC	144.79	145.39	D
KNOXVILLE	WB4IOB	146.13	146.73		UNION CITY	WA4YGM	146.10	146.70	N
KNOXVILLE	K4HXD	146.34	146.94		WAVERLY	N04Q	146.685	146.085	D NB
KNOXVILLE	K4HXD	147.675	147.075	A	WINCHESTER	WR4AFH	146.22	146.82	N
KNOXVILLE	W4BBB	147.90	147.30		220 MHZ				
KNOXVILLE	WB4HAP	147.96	147.36		CHATT/SIGNAL MT	WA4ZOK	223.30	224.90	
KNXVL/HOUSE MT	WB4GBI	144.87	145.47		CHATTANOOGA	K4VCM	223.18	224.78	A
LAFOLLETTE	KF4OK	144.53	145.13		CLARKSVILLE	KF4GP	222.34	223.94	N
LAFOLLETTE/WMT	W4TZG	146.07	146.67		FRANKLIN	WD4SGS	222.54	224.14	N
LAKE CITY	WB4OAH	146.22	146.82	N	GALLATIN	WB4ZSA	222.38	223.98	PA
LENOIR CITY	KE4SK	144.57	145.17		GREENEVILLE	WB4NKM	223.34	224.94	A
LEXINGTON	WB4LGH	146.43	147.03	N	HERMITAGE	WB4RAB	222.30	223.90	
MADISON	WB4NTM	146.04	146.64		KNOXVILLE	WA4YON	222.86	224.46	
MANCHESTER	W4FOT	146.10	146.70	N A	KNOXVILLE	W4BBB	222.90	224.50	
MARTIN	WA4ZQX	146.625	146.025	D NB	KNOXVILLE	KB4CTS	223.22	224.82	N C
MCMINNVILLE	WA4CPJ	144.63	145.23	N A	KNOXVILLE	W4ZJM	222.34	223.94	N L
MCMINVL/SHT MT	W4KKO	144.89	145.49		MEMPHIS	N4TB	222.42	224.02	N
MEDINA	K4BEZ	146.37	146.97	D A	NASHVILLE	WR4	222.48	224.08	N
MEMPHIS	WA4VIP	144.81	145.41	N	NASHVILLE	N4AWB	222.62	224.22	N
MEMPHIS	WA4KOG	144.89	145.49	N	440 MHZ				
MEMPHIS	WB4MOD	145.33	PKET	N	ALAMO	WB4EDS	448.75	443.75	D L
MEMPHIS	W4GYS	146.04	146.64	N	CHATT/SIGNAL MT	WA4ZOK	439.25	427.25	V
MEMPHIS	WR4AOG	146.10	146.70	N R	CHATTANOOGA	WA4NFO	449.10	444.10	
MEMPHIS	KA4JXT	146.13	146.73	N	FISHERVILLE	N4D0S	449.30	444.30	N A
MEMPHIS	WR4ABS	146.19	147.51	N NB	FRANKLIN	WB4EPG	447.80	442.80	N
MEMPHIS	W4BS	146.22	146.82	N	GALLATIN	WD4BKY	449.35	444.35	
MEMPHIS	WA4KOG	146.25	146.85	N A	GALLATIN	WD4KJP	449.45	444.45	PA
MEMPHIS	WA4ETE	146.28	146.88	N A	GATLBG/COVE MT	WA4KWH	448.30	443.30	L
MEMPHIS	K4BN	146.34	146.94	N A	GREENEVILLE	WB4NKM	449.65	444.65	
MEMPHIS	K4FZJ	146.40	147.00	N	HOOVER (ALA)	K4FUM	449.30	444.30	NBA
MEMPHIS	WA4MQQ	146.46	147.06	N	KNOXVILLE	WB4HAP	447.50	442.50	
MEMPHIS	W4ZJM	147.63	147.03	N L	KNOXVILLE	K4HXD	449.30	444.30	
MEMPHIS	WR4AWT	147.69	147.09	N	KNOXVILLE	KB4NK	449.60	444.60	
MEMPHIS	WB4DAZ	147.72	147.12	N AT	KNXVL/HOUSE MT	WB4GBI	449.70	444.70	
MEMPHIS	WA5KUB	147.75	147.15	N	MEDINA	K4BEZ	447.05	442.05	D AL
MEMPHIS	WA4KOG	147.78	147.18	N	MEMPHIS	WA4KOG	444.40	449.40	N NB
MEMPHIS	WD4APK	147.84	147.24	N	MEMPHIS	WA4QWW	447.80	442.80	N
MEMPHIS	WR4AZC	147.87	147.27	N	MEMPHIS	W4ZJM	448.00	443.00	N
MEMPHIS	WA4ADT	147.90	147.30	N	MEMPHIS	WA4DOA	448.40	443.40	N A
MEMPHIS	WB4MMI	147.96	147.36	N	MEMPHIS	KA4JKT	449.50	444.50	N A
MEMPHIS	WR4ASR	147.99	147.39	N	MEMPHIS	WD4APK	449.80	444.80	N
MIDDLEBRO (KY/TN)	W4PPM	144.63	145.23	N	MILAN	WD4ABJ	449.55	444.55	N
MORRISTOWN	WD4RTT	147.63	147.03	EA	MORRISTOWN	KA4NEX	449.20	444.20	N
MORRISTOWN	WB4OAH	147.825	147.225	N	NASHVILLE	WA4PCD	449.55	444.55	
MOUNTAIN CITY	WD4OMO	144.87	145.47	N	NASHVILLE	WA4PCD	449.675	444.675	
MT. JULIET	WB4DOR	144.79	145.39	N	NASHVILLE	N4TK	449.775	444.775	N
MURFREESBORO	WB4LHO	144.57	145.17	PA	NASHVILLE	WB4THG	449.875	444.875	N
NASHVILLE	N4AJS	144.65	145.25		NASHVILLE	WB4QES	449.975	444.975	N
NASHVILLE	KA4KNG	144.75	145.35	N	OAK RIDGE	K4EAJ	449.40	444.40	L
NASHVILLE	WB4HTX	144.83	145.43	PA	10 METERS				
NASHVILLE	N4ARK	144.87	145.47	N	MEMPHIS	W4ZJM	29.52	29.62	N
NASHVILLE	WA4PCD	146.01	146.61	PA	6 METERS				
NASHVILLE	WB4NTM	146.07	146.67		CHATTANOOGA	WB4LRD	52.01	53.01	
NASHVILLE	WB4QES	146.16	146.76	N	KNOXVILLE	WB4IOB	52.15	53.15	A
NASHVILLE	W4SQE	146.19	146.79		KNOXVILLE	WA4YON	52.25	53.25	L
NASHVILLE	N4TK	146.25	146.85	PA	KNOXVILLE	WB4GBI	52.35	53.35	C
NASHVILLE	WB4QES	146.28	146.88	N	KNOXVILLE	K4HXD	52.76	52.525	NB
NASHVILLE	WA4PCD	146.34	146.94		MEMPHIS	WA4KOG	52.01	53.01	N
NASHVILLE	AF4K	147.615	147.015	N	The CVRA-SERA Repeater Index Has Been Corrected Through April 16th of all changes and Full Memberships Possible.				
NASHVILLE	WD4FFM	147.705	147.105	N					
NASHVILLE	WA4PCD	147.75	147.15						
NASHVILLE	WA4PCD	147.78	147.18						
NASHVILLE	WB4ZSA	147.90	147.30	PA					
NASHVILLE	N4AJS	147.93	147.33						
OAK RIDGE	W4SKH	146.28	146.88	D					
OAK RIDGE	W4SKH	146.37	146.97	D L					
OAK RIDGE	K4EAJ	147.72	147.12	L					
OAK RIDGE	K4EAJ	147.75	147.15	R					
PARIS	K4KLX	147.96	147.36	A					

GEORGIA REPEATERS

2-METERS

ADAIRSVILLE	WB4LRA	146.085	146.685	
ALBANY	WR4ADM	146.10	146.70	
ALBANY	W4MM	146.13	146.73	
ALBANY	WR4ANB	146.22	146.82	
AMERICUS	WR4AQH	147.87	147.27	
ASHBURN	WA4NTF	144.63	145.23	
ASHBURN	K4QT	147.285	147.885	NB
ATHENS	WA4BKF	146.13	146.73	
ATHENS*	K4TQU	147.375	147.975	NB
ATLANTA	NC4E	144.69	145.29	
ATLANTA	WB4LBM	144.71	145.31	
ATLANTA	W4BOC	144.85	145.45	
ATLANTA	WR4ABE	146.04	146.64	T
ATLANTA	W4DOC	146.22	146.82	
ATLANTA	WR4ABC	146.37	146.97	
ATLANTA	WR4ARK	146.40	147.00	PA
ATLANTA	K4SMX	147.795	147.195	
ATLANTA	W4LUZ	147.855	147.255	
ATLANTA/BELL*	W4PME	144.81	145.41	
ATLANTA/GA TECH*	W4AQL	144.55	145.15	
AUGUSTA*	K4VF	146.34	146.94	
AUGUSTA*	W4ALK	147.72	147.12	A
AUGUSTA*	N4BMA	147.78	147.18	R
BALDWIN	WD4NHW	147.78	147.18	
BLAIRSVILLE	WA4EZN	147.70	147.10	NB
BRUNSWICK	K4TVE	146.13	146.73	
BUFORD	WD4JXR	147.075	147.675	PNB
BUFORD	WD4JXR	147.87	147.27	
CANTON	KE4PN	144.67	145.27	
CARROLLTON	W4FWD	146.04	146.64	
CEDARTOWN	W4CMA	147.72	147.12	
CLEVELAND	K4FOW	144.69	145.29	
CLEVELAND	K4FOW	147.015	147.615	NB
CLOUDLAND	N4AHE	147.225	147.825	NB
COHUTTA-RTTY	W4KAU	146.46	147.06	R
COLUMBUS	WA4QHN	146.01	146.61	
COLUMBUS	N4BJZ	146.28	146.88	
CONYERS	WB4SLZ	147.21	147.81	NB
COVINGTON	WA4ASI	146.925	146.325	NB
CUMMING	K4BYK	147.75	147.15	PA
DALLAS	K4DVJ	146.25	146.85	
DALTON*	N4BZJ	144.65	145.25	
DALTON*	KC4TT	147.315	147.915	NB
DALTON*	N4BZJ	147.735	147.135	
DECATUR*	W4VTA	144.51	145.11	EA
DOUGLASVILLE	KB4EO	147.96	147.36	
DUBLIN	WA4HXZ	147.96	147.36	
FAYETTEVILLE	K4UWN	146.685	146.085	NB
FOLKSTON	K4DMK	146.19	146.79	
FOREST PARK	K4KQK	144.65	145.25	
FORSYTH	WR4AQA	147.315	147.915	NB
GAINESVILLE	WD4IWI	146.31	146.91	
GAINESVILLE*	W4NSO	146.07	146.67	A
GRIFFIN	WR4AIV	146.31	146.91	
GRIFFIN	WR4AEA	146.43	147.43	NB
GRIFFIN*	WB4GWA	144.79	145.39	PA
HAMILTON	WB4ULJ	144.59	145.19	
HAMILTON	N4GDG	146.835	146.235	NB
HAMILTON-RTTY	K4ACH	144.77	145.37	
HAMPTON	WA4DIW	144.57	145.17	
HAPEVILLE	WR4ABN	147.63	146.03	
HARTWELL*	KY4T	146.895	146.295	ANB
IRWINTON	WB4NFG	147.84	147.24	
JASPER	W4OOM	146.10	146.70	
JESUP	WA4EQL	146.07	146.67	
JONESBORO	WA4DIW	144.57	145.17	
JONESBORO	WA4OGE	144.73	145.33	
KENNESAW	WB4UPC	144.83	145.43	
LAGRANGE	WR4	146.40	147.00	
LAGRANGE	WB4BXO	147.93	147.33	
LYONS	K4HAO	146.22	146.82	
MACON	W4BKM	146.06	146.66	NB

MACON	K4ICT	147.66	147.06	T
MARIETTA	WB4KJB	146.13	146.73	
MARIETTA	WB4BTI	146.28	146.88	
MARTINEZ*	WB4YAT	144.89	145.49	
METTER	W4TYM	147.645	147.045	
MILLEDGEVILLE	K4AWDF	144.51	145.11	A
MILLEDGEVILLE	WB4DOJ	146.10	146.70	
MOULTRIE	WD4KOW	146.19	146.79	
NEWMAN*	K4SEX	144.53	145.13	PA
NEWMAN*	K4SEX	146.19	146.79	
PRESTON	W4TOV	146.385	146.985	
QUITMAN	WA4NKL	146.28	146.88	
RINGGOLD	WR4ABZ	146.115	146.715	
RIVERDALE	WA4EPK	144.61	145.21	
ROME	W4VO	146.34	146.94	
ROME	K4HNM	147.30	147.90	NB
ROSSVILLE	W4VAG	147.81	147.21	
ROSWELL	N4CLA	144.87	145.47	
SANDY SPRINGS	WB4CPL	144.75	145.35	
SAVANNAH	K4NLX	144.63	145.23	
SAVANNAH	K4NLX	146.10	146.70	PA
SAVANNAH*	W4HBB	146.28	146.88	
SAVANNAH*	W4HBB	146.37	146.97	A
SMYRNA	WA4YUR	144.61	145.21	
STATESBORO	K4MEF	147.81	147.21	
STONE MTN	W4BOC	146.16	146.76	
SVR CRK/MT ALTO	K4HNM	147.90	147.30	
SWAINSBORO	K4VYX	146.19	146.79	
THOMASTON	K4IMK	147.99	147.39	
THOMASVILLE	K4UFM	147.66	147.06	
TOCCOA*	KA4DIP	147.93	147.33	PA
VALDOSTA	W4APS	146.16	146.76	
VALDOSTA	WA4SMH	147.135	147.735	NB
VIENNA	WA4RWS	144.89	145.49	
WARNER ROBINS	WB4BDP	146.01	146.61	
WARNER ROBINS	W4HON	146.25	146.85	A
WARNER ROBINS	W4MST	147.015	147.615	RNB
WAYCROSS	WR4AMK	146.04	146.64	
WRENS*	N4JAP	144.77	145.37	P
WRIGHTSVILLE	WA4RVB	146.34	146.94	

220 MHZ

ATLANTA	KK4C	223.22	224.82	PA
CANTON	WB4UPC	222.34	223.94	
CANTON	WB4UPC	223.06	224.66	
KENNESAW	WB4UPC	222.52	224.12	
KENNESAW	WB4UPC	223.34	224.94	

440 MHZ

ALBANY	WA4GKI	439.25	427.25	V
ATLANTA	N4WQW	449.625	444.625	A
BUCKHEAD	WA4YNZ	449.975	444.975	T
COLUMBUS	WA4QHN	449.20	444.20	
KENNESAW	WB4UWL	449.50	444.50	
RIVERDALE	WA4EPK	449.55	444.55	
STONE MTN	W4BOC	449.25	444.25	

10-METERS

ATLANTA*	KE4IO	29.52	29.62	
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* CVRA-SERA Full Member Repeater

EAST KENTUCKY REPEATERS

2 METERS

ASHLAND	WR4ACQ	146.34	146.94	
DAMRON MTN*	K4BGQ	147.87	146.27	
ELKHORN CITY	WB4AWU	147.60	147.00	EAO
GUTHRIE	KA4NNE	146.13	146.73	
HAZARD	K4VHF	146.07	146.67	
JENKINS	WD4PDJ	147.99	147.39	
LOUISA*	WA4SWF	146.13	146.73	
MOREHEAD	K4GFY	146.31	146.91	
PIKEVILLE*	N4ETG	146.19	146.79	
PIKEVILLE*	N4IXA	146.25	146.85	A
PRESTONSBURG*	K4ICN	144.69	145.29	

* CVRA-SERA Full Member Repeater

THE MIDDLE ATLANTIC FM AND REPEATER COUNCIL

LISTING BY OUTPUT FREQUENCY

2 METERS

4.51 /5.11	WASHINGTON DC	MD
4.53 /5.13	NW. BALTIMORE	MD
4.57 /5.17	MILFORD	DE
4.59 /5.19	WASHINGTON DC	MD
4.61 /5.21	LUTHERVILLE	MD
4.65 /5.25	ROCKVILLE	MD
4.69 /5.29	BETHESDA	MD
4.73 /5.33	E. BALTIMORE	MD
4.77 /5.37	ADELPHI	MD
4.79 /5.39	HUGHESVILLE	MD
4.81 /5.41	WESTMINSTER	MD
4.85 /5.45	CUMBERLAND	MD
	GLEN BURNIE	MD
4.89 /5.49	COLLEGE PARK	MD
6.01 /6.61	CHEVERLY	MD
6.025/6.625	SALISBURY	MD
6.04 /6.64	LEXINGTON PARK	MD
	ROCKVILLE	MD
6.07 /6.67	BALTIMORE	MD
6.10 /6.70	NEWARK	DE
6.13 /6.73	WILMINGTON	DE
	FREDERICK	MD
6.16 /6.76	JESSUP	MD
6.175/6.775	BEL AIR	MD
6.205/6.805	DOVER	DE
	CROWNSVILLE	MD
6.22 /6.82	SALISBURY	MD
6.235/6.835	GREENBELT	MD
6.25 /6.85	HAVRE DE GRACE	MD
6.265/6.865	LEXINGTON PARK	MD
6.28 /6.88	CUMBERLAND	MD
	GREENBELT	MD
6.295/6.895	LUTHERVILLE	MD
6.325/6.925	SALISBURY	MD
6.34 /6.94	HAGERSTOWN	MD
	N. BALTIMORE	MD
6.355/6.955	NEWARK	DE
	GAITHERSBURG	MD
6.37 /6.97	DOVER	DE
6.385/6.985	CHESAPEAKE BCH	MD
7.63 /7.03	BALTIMORE	MD
6.445/7.045	EASTON	MD
7.66 /7.06	FREDERICK	MD
7.675/7.075	MILLSBORO	DE
7.69 /7.09	HAGERSTOWN	MD

7.705/7.105	DAVIDSONVILLE	MD
7.72 /7.12	BEL AIR	MD
7.735/7.135	COLUMBIA	MD
7.75 /7.15	CHELLENHAM	MD
7.78 /7.18	BETHANY BEACH	DE
	OCEAN CITY	MD
	SILVER SPRING	MD
7.795/7.195	DOVER	DE
6.825/7.225	NEWPORT	DE
7.84 /7.24	E. BALTIMORE	MD
7.87 /7.27	POTOMAC	MD
7.885/7.285	BALTIMORE	MD
7.945/7.345	W. BALTIMORE	MD
7.96 /7.36	WASHINGTON DC	MD
7.99 /7.39	COLUMBIA	MD
	FROSTBURG	MD

220 MHZ

2.02 /3.62	BALTIMORE	MD
2.24 /3.84	NE. BALTIMORE	MD
2.28/ 3.88	RAVENSVILLE	MD
2.40/ 4.00	WILMINGTON	MD
2.64 /4.24	N. BALTIMORE	MD
2.78 /4.38	W. BALTIMORE	MD
2.90 /4.50	WASHINGTON DC	MD
2.94 /4.54	WILMINGTON	DE
2.98 /4.58	DAMASCUS	MD
3.16 /4.76	JESSUP	MD
3.20 /4.80	NW. BALTIMORE	MD
2.22 /4.82	WASHINGTON DC	MD
3.26 /4.86	LAUREL	MD
3.34 /4.94	W. BALTIMORE	MD

440 MHZ

9.25 /6.25	BALTIMORE	MD
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10 METERS

9.52 /9.62	FREELAND	MD
9.54 /9.64	BALTIMORE	MD
9.56 /9.66	WILMINGTON	DE
	SILVER SPRING	MD

6 METERS

2.15 /3.15	NW. BALTIMORE	MD
2.25 /3.25	WHEATON	MD

T-MARC

T-MARC Index of Maryland
and Delaware Ctsy of:
Gary Hendrickson, W3DTN
T-MARC Freq. Coordinator

TWO METER

2-Meter Bandplan
80 Chan/16 Simplex
600-kHz offset
20-kHz spc sub
15-kHz spacing
standard/splits

FM Sub-Band

144.510-145.110
144.530-145.130
144.550-145.150
144.570-145.170
144.590-145.190
144.610-145.210
144.630-145.230
144.650-145.250
144.670-145.270
144.690-145.290
144.710-145.310
144.730-145.330
144.750-145.350
144.770-145.370
144.790-145.390
144.810-145.410
144.830-145.430
144.850-145.450
144.870-145.470
144.890-145.490

FM Std & Splits

146.010-146.610
146.025-146.625
146.040-146.640
146.055-146.655
146.070-146.670
146.085-146.685
146.100-146.700
146.105-146.705
146.130-146.730
146.145-146.745
146.160-146.760
146.175-146.775
146.190-146.790
146.205-146.805
146.220-146.820
146.235-146.835
146.250-146.850
146.265-146.865
146.280-146.880
146.295-146.895
146.310-146.910
146.325-146.925
146.340-146.940
146.355-146.955
146.370-146.970
146.385-146.985
146.400-147.000
146.415-147.015
146.430-147.030

146.445-147.045
146.460-147.060
146.475-147.075
Invert
147.600-147.000
147.615-147.015
147.630-147.030
147.645-147.045
147.660-147.060
147.675-147.075
147.690-147.090
147.705-147.105
147.720-147.120
147.735-147.135
147.750-147.150
147.765-147.165
147.780-147.180
147.795-147.195
147.825-147.225
147.900-147.300
147.915-147.315
147.930-147.330
147.945-147.345
147.960-147.360
147.975-147.375
147.990-147.390

Coord. in extr.
situations only.

147.405-146.805
147.420-146.820
147.435-146.835
147.450-146.850
147.465-146.865
147.480-146.880
147.495-146.895

Weak Signal/SSB

144.00 to 144.50
144.90 to 145.10
145.50 to 146.00

Reservd-Satellite

145.85 to 145.95

Simplex Freqs.

146.490 147.420
146.505 147.435
146.52* 147.450
146.535 147.465
146.550 147.480
146.565 147.495
146.580 147.510
146.595 147.535
147.480 147.540
147.495 147.555
147.510 147.570
147.525 147.585

*Int'l Call Freq.

440 MHZ BAND

440-mHz Bandplan
60 FM Channels
5-mHz. Offset
50-kHz.std.ch.
25-mHz.split ch.

447.000-442.000
447.050-442.050
447.100-442.100
447.150-442.150
447.200-442.200
447.250-442.250
447.300-442.300
447.350-442.350
447.400-442.400
447.450-442.450
447.500-442.500
447.550-442.550
447.600-442.600
447.650-442.650
447.700-442.700
447.750-442.750
447.800-442.800
447.850-442.850
447.900-442.900
447.950-442.950
448.000-443.000
448.050-443.050
448.100-443.100
448.150-443.150
448.200-443.200
448.250-443.250
448.300-443.300
448.350-443.350
448.400-443.400
448.450-443.450
448.500-443.500
448.550-443.550
448.600-443.600
448.650-443.650
448.700-443.700
448.750-443.750
448.800-443.800
448.850-443.850
448.900-443.900
448.950-443.950
449.000-444.000
449.050-444.050
449.100-444.100
449.150-444.150
449.200-444.200
449.250-444.250
449.300-444.300
449.350-444.350
449.400-444.400
449.450-444.450
449.500-444.500

449.550-444.550
449.600-444.600
449.650-444.650
449.700-444.700
449.750-444.750
449.800-444.800
449.850-444.850
449.900-444.900
449.950-444.950

420-431 Shared
all modes (option)

420-431 Shared
all-modes-option

431-433 -Narrow
band/satellite

433-435 -Aux &
Control Links

435-438-Satellite
oper-No Rptrs.

445-447. Shared
Simplex/Aux. &
Control Links

446.0 Nat simplx

25-kHz. split pr
when needed will
be coord. hi-in/
lo-out, the same
as with 50 kHz
std pairs above.

TEN METER BAND

10-Meter Bandplan
4 FM Channels
100-kHz. Offset
20-kHz.Ch.space

29.52 - 29.62
29.54 - 29.64
29.56 - 29.66
29.58 - 29.68

Simplex FM
29.50*
29.60**

*Alt Call Freq
**Nat Call Freq

**SUPPORT YOUR HOME
REPEATER
IF YOU USE IT -
HELP FINANCE IT!
It's The Only Fair Way!**

220 MHz BANDPLAN

220-mHz Bandplan
55 FM Channels
1.6-mHz Offset
20-kHz Ch.space

222.30-223.90
222.32-223.92
222.34-223.94
222.36-223.96
222.38-223.98
222.40-224.00
222.42-224.02
222.44-224.04
222.46-224.06
222.48-224.08
222.50-224.10
222.52-224.12
222.54-224.14
222.56-224.16
222.58-224.18
222.60-224.20
222.62-224.22
222.64-224.24
222.66-224.26
222.68-224.28
222.70-224.30
222.72-224.32
222.74-224.34
222.76-224.36
222.78-224.38
222.80-224.40
222.82-224.42
222.84-224.44
222.86-224.46
222.88-224.48
222.90-224.50
222.92-224.52
222.94-224.54
222.96-224.56
222.98-224.58
223.00-224.60
223.02-224.62
223.04-224.64
223.06-224.66
223.08-224.68
223.10-224.70
223.12-224.72
223.14-224.74
223.16-224.76
223.18-224.78
223.20-224.80
223.22-224.82
223.24-224.84
223.26-224.86
223.28-224.88
223.30-224.90
223.32-224.92

223.34-224.94
223.36-224.96
223.38-224.98

Simplex Chan.

223.40 223.52
223.42 223.54
223.44 223.56
223.46 223.58
223.48 223.60
223.50*

*Int simpl Freq

SIX METER BAND

6-Meter Bandplan

31 FM Channels

1 mHz. Offset

20-kHz.Ch.space

52.01 - 53.01
52.03 - 53.03
52.05 - 53.05
52.07 - 53.07
52.13 - 53.13
52.15 - 53.15
52.17 - 53.17
52.23 - 53.23
52.25 - 53.25
52.27 - 53.27
52.33 - 53.33
52.35 - 53.35
52.37 - 53.37
52.43 - 53.43
52.45 - 53.45
52.47 - 53.47
52.55 - 53.55
52.57 - 53.57
52.63 - 53.63
52.65 - 53.65
52.67 - 53.67
52.73 - 53.73
52.75 - 53.75
52.77 - 53.77
52.83 - 53.83
52.85 - 53.85
52.87 - 53.87
52.93 - 53.93
52.95 - 53.95
52.97 - 53.97
52.99 - 53.99

Simplex FM

51.65
51.51 51.83 51.69
51.55 51.87 51.73
51.59 51.91 51.77
51.63 51.95 51.81
51.67 51.99 51.85
51.71 51.53 51.89
51.75 51.57 51.93
51.79 51.61 51.97

Simplex Scanning Autopatch

—From Leigh Bartlow, WD4CPF
Pres. N. Alabama Rpt. Assn.

The North Alabama Repeater Association has installed a scanning autopatch on four Huntsville area repeaters. This autopatch uses a VOX-operated PPII simplex autopatch from Connect Systems, Inc. interconnected with a KDK 2030 two meter transceiver, and a special scan latch circuit.

Up until the installation of the simplex patch, the Huntsville area had only one open autopatch. This half duplex autopatch is located in Huntsville, and is UHF-linked to the remote 78-18 repeater on Brindley Mountain (12 mi. south). When 78-18 went down, three area had no open autopatch. Prior to being located on Brindley Mountain, 78-18 had been co-located with the 34-94 repeater at TV Channel 31 on Monte Sano, a 1600 foot high mountain within the city limits overlooking downtown Huntsville (1000 feet HAAT). This location suffered from severe desensing and a commercial phone rate. Relocation of 78-18 twelve miles to the south caused some autopatching difficulties in northern sections of the coverage area, including some downtown areas which had been HT patch-capable. Something had to be done for the 250,000 people in Greater Huntsville, and the many hams in the North Alabama area.

Connect Systems' PP II has an access code consisting of a programmable sequence of five touch tones. Our PP II was delivered with a 1-2-3-4-5 sequence and it was left that way. WD4CPF added an external scan latch and connect timer to the system, with the latch being set when the 1 is decoded. This latch stops the memory scan of the interconnected two meter transceiver. The KDK2030 was modified such that the scanner did not stop on a busy frequency, but rather when the external scan latch was set (a simple change). After the fifth tone is received, the patch sends CW ID (WD4CPF), and three seconds of dial tone. The mobile user commences dialing within 3 seconds after the dial tone stops. Failure-to-connect within 20 seconds causes the connect timer to reset the scan latch, and the transceiver resumes scanning.

PP II operation is essentially the same as VOX simplex operations between two stations, with the mobile user and phone user talking back and forth, with neither interrupting the other. A 3 second interrupt window is given to the mobile user if the phone VOX is actuated for 15 seconds continuously. Shutdown is accomplished by the mobile sending the first four access tones, either between rings if no answer, during the 3 second window if busy, or after the phone user hangs up.

Five pairs of transmit and receive frequencies are programmed in the transceiver memories. These include the two repeaters sponsored by the North Alabama Repeater Association, one of the repeaters of the North Alabama DX Club, the closed pl-accessed repeater/remote base on 145.43 (WB4LTT's crew) and 146.535 Mhz simplex. The KDK2030 is set to operate on low power (5 watts) and is driven by a separate DC power supply. The antenna is a 19 inch tower-mounted whip at 40 feet.

The simplex patch system is operation, and is co-located with the UHF-lined 78-18 autopatch, and shares the same phone line. PP II includes long distance lockout, 3/6 minute timer, an integral DC power supply, and other features. Connections between the patch and the transceiver include PTT, microphone audio, speaker audio, and ground. When accessing, the "one" must be held long enough to ensure scan latching. The same ID is heard on all five frequencies.

Full Membership Growing!

We reported in the February Journal that Virginia took the honors for having the most repeaters percentage-wise to join by December 31. Well, Virginia, I'm afraid North Carolina and South Carolina took me too seriously. They have done passed you.

North Carolina, even with the addition of 13 new repeaters this quarter, still jumped from 46.1% to 56% membership in the first quarter of 1984.

South Carolina had no new repeaters listed last quarter, and made gains from 46.6% to 56% to tie with the Tar Heels.

Virginia had a gain of eight new repeaters to their lists (not counting Northern Virginia which is T-MARC territory) and managed to move from

47.6% Full Membership Jan. 1st to 53% by March 31.

Tennessee had one more repeater added and moved from 31.5% to 41% representation in CVRA-SERA.

West Virginia added 6 new repeaters to their index and still managed a gain to 40% from 33.9% Full Membership.

As of March 31, CVRA-SERA had an overall representation across the 5 States of 53%. A total of 264 memberships have come in, representing 352 repeaters. (22 memberships are from Georgia, E. Kentucky and Alabama).

It can also be noted that North Carolina again passed Tennessee in total number of repeaters on the air. North Carolina has 193, Tennessee 189.

As of April 1st, CVRA-SERA Full Membership by District:

State	Mbrshps	Rep # repeaters	total Jan. 1	Total repeaters	% mbrshp
NC	87	108	46.1%	193	56%
VA	54	71	47.6%	134	53%
TN	46	77	31.5%	189	41%
SC	34	42	46.6%	75	56%
WV	21	27	33.9%	68	40%
EKY	5	5	---	11	--
GA	15	19	---	127	15%
ALA	2	3	---	--	--

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220 MHZ. CRYSTALS—Stocking all pairs every 20 kHz. beginning with 222.02-223.62 thru 223.38-224.98. (Lo-in/Hi-out) Simplex pairs of 223.46, 50.66 & 68. ALL others special order. (6-8 Weeks Del.)

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- DRAKE - TR22, 22C (No Sub Band), 33C, 72
- KENWOOD - TR220, 7200
- MIDLAND - 13-500, 13-505, 13-520
- REGENCY - HRT-2, HR2, 2A, 2B, 212, 312 (No Sub Band)
- HEATH - HW-2021 ONLY
- TEMPO - FMH, FMH-2, FMH-5 ONLY
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- SEARS 3573 • YAESU FT-202

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CVRA-SERA COORDINATION POLICY AND GUIDELINES

FOREWORD

The FCC will no longer tolerate the "choosing" of a frequency and placing a repeater on the air – which will cause interference. CVRA-SERA is recognized as the Coordinating Body in the Districts it serves and is charged with the responsibility of management of frequencies of repeaters in the UHF/VHF spectrum. Persons who willfully place an uncoordinated repeater on the air which causes interference to an existing repeater may be subject to fines and license revocation by the FCC. In addition, users of the violating repeater may be subject to fines and license revocation, subject to FCC investigation. CVRA-SERA through its Coordination Policy and Guidelines will make all efforts to protect existing repeaters on frequencies in areas they serve. CVRA-SERA cannot coordinate a frequency to anyone, if it is believed that frequency might cause interference. Doing so would place CVRA-SERA in a position of condoning interference. In cases where, in the opinion of the District Director, there are no available frequencies on the 2-meter band in the area in question, NO frequency will be recommended to any applicant for that band.

CVRA-SERA Coordination Policy and Guidelines

1. CVRA-SERA State Directors, Vice-Directors, and Asst. Directors function in an advisory capacity, and must rely on voluntary cooperation from repeater operators in order to be effective. Toward that end, every policy and individual recommendation of the directors must be logically traceable to the goal of the most effective use of our limited frequency spectrum for the benefit of the largest possible number of amateurs. The recommendations must be devoid of individual preferences and arbitrariness.

2. The Directors recognize two fundamental motivations for the establishment of an amateur repeater. (1) As a service to other amateurs living or traveling in a service area, and (2) as an exercise in individual achievement on the part of the operator(s). Both of these motivations are equally valid and in the traditional spirit of amateur radio. However, in cases where these two rationales are in conflict, the motivation toward service must prevail over the individual achievement motivation. For example, the desire of an operator to set up a new repeater, largely for reasons of self-achievement, in an area already well-served by existing repeaters, must be accommodated in a way that does not detract from the existing area service in terms of co- or adjacent channel interference.

3. Repeater frequency assignments in all amateur bands allowing repeaters shall be in accordance with CVRA-SERA band plans, which are similar to, the ARRL National Band Plan and recognizable by the FCC as "official". Only in rare instances are frequencies other than band plan condoned, judged on a case-by-case basis.

4. Repeater frequency assignments shall be chosen with as much, if not more, weight given to the consequences of the transmissions of fixed and mobile stations on the input frequency, as compared to the consequences of the output signal of the repeater itself. The majority of repeater coordination problems arise from individual stations keying other repeaters in addition to the one intended.

5. A frequency assignment for a new repeater is made with respect to a specific planned location, height above average terrain, and expected coverage area. It is not an assignment to the repeater operator for unspecified use. Directional antenna systems, where appropriate, may be an essential part of a given assignment. A major facility change, affecting the coverage area of the repeater output or the area from which the repeater will attract input transmissions, is cause for a new frequency coordination request. As a rule of thumb, based on level terrain, at least 100 miles separation is required for same channel repeaters and 75 miles separation between standard and split-split adjacent channels. Mountainous terrain might require additional separation on a case-by-case basis.

6. Just as with FCC broadcast allocations, "grandfathering" is an accepted principle. Existing repeaters have first rights to continued use of their frequencies and service area, and the effective use of an existing repeater should not be appreciably diminished by a new repeater. However, as with FCC practice, these rights have great weight but are not absolute. For example, an established wide-area repeater should tolerate minor loss of fringe coverage and occasional inadvertent keying to allow a new repeater to provide needed service at a location distant from the first. Grandfathering carries no special rights to make a major facility change without reconsideration of the frequency assignment, as stated in Policy 5.

7. When, in a given area, all 146 and 147 frequency pairs having 30 kHz separation have been used, those requesting new repeater frequencies will be urged to accept assignments based on the following priorities, listed in order:

(a) 144-145 MHz subband frequencies.

(b) 146 and 147 MHz frequency pairs having 15 kHz separation from existing 30 kHz separated frequencies. The burden of proof of non-interference to or from fixed or mobile stations working the proposed repeater or existing adjacent channel repeaters rests with the repeater operator who insists on 15 kHz separation channels in preference to 144, 220, and 440 MHz alternatives. Any frequency assignment on 15 kHz spaced channels should be considered tentative until several months of operation with typical conditions reveals no significant interference problems. Rationale: most equipment presently available to amateurs does not have sufficient adjacent channel selectivity to accommodate typical fixed and mobile operation through repeaters spaced only 15 kHz apart, even when inversion of in and out frequencies with respect to adjacent channels is done.

(c) 220 MHz frequencies. Rationale: Good equipment at reasonable cost is available for this least-used vhf band. Increased use of this band by amateurs will mitigate against loss of part or all of that band to other interests, a precedent that could have dire impact on other amateur bands as well.

(d) 440 Mhz frequencies

A special situation exists when large metropolitan areas have utilized all 146 and 147 MHz 30 Khz spaced pairs, causing a lack of availability of usch pairs in the suburban or rural areas surrounding the large city. In such situations, carefully chosen pairs on 15 kHz spacing from the city repeaters may well be properly assigned to the outlying areas without interference problems, and may in that circumstance be a preferable choice over 220 or 440 MHz frequencies, bringing two-meter service to an area precluded by the city repeaters.

8. The appropriateness of closed repeaters in some circumstances is recognized. However, requests for closed repeaters on the two-meter band, having wide coverage areas, will be discouraged. Rationale: Two-meter frequency pairs are a limited and valuable resource and should be made available to the majority of amateurs. It should be noted that the 220 MHz band offers a privacy to closed repeaters that is not possible on two-meters, greatly aiding in the problem of unwanted use of private repeaters.

9. The operator of a proposed repeater is expected to actively participate with the director in his area in the task of surveying the frequencies and coverage areas of existing repeaters, in order to select an appropriate frequency for the new repeater. In particular, the new repeater operator bears prime responsibility for whatever tests and listening periods are required at the proposed site. Logs of signals and locations heard at the proposed site, preferably for several weeks, may have great weight in frequency selection.

10. Each respective repeater operator wanting to avail himself of the coordinating services of the Directors shall submit to the Director in his area a completed repeater frequency coordination form. Upon recommending a specific frequency pair to an applicant, the director will hold that pair and its planned coverage area open for a period of 60 days, by which time the proposed repeater shall be in operation at its permanent location with coverage area as proposed. An extension of this construction period can be made by contacting the area Director but will be granted only for bonafide reasons different from simple failure to proceed from lack of interest. If after 90 days, no extension is requested, and the repeater is not reported to be actively on the air in a reasonably continuous fashion, the coordinated frequency will be withdrawn by the Director and placed back in the CVRA-SERA coordination pool to be reassigned as needed. When the frequency is withdrawn, any proposed repeater to be placed on this channel at a later time is subject to re-coordination, and if not it will be considered an uncoordinated repeater, according to CVRA-SERA Coordination Policies and the FCC.

Rationale: This practice, taken from FCC practice, insures that valuable spectrum not be wasted by holding assignments open for protracted periods when applicants fail to construct in a timely manner.

11. "Repeaters located in the National Radio Quiet Zone were brought under specific FCC control by Section 97.85 of the Communications Act, as amended on May 13, 1981. Coordinators must make every effort to avoid creating interference to those repeaters in the Zone, as they cannot change frequency, power, or antenna pattern without specific permission from the Commission which must also be approved by officials at both the Green Bank, West Va., and the Sugar Grove, West Va. radio observatories."

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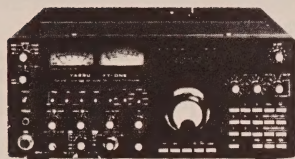
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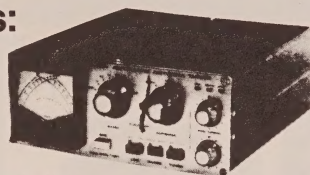


DAIWA J. W. Miller

MIRAGE



DRAKE



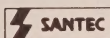
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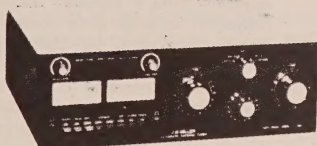


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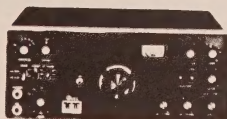
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73, THE GISMO GANG

An "A" Can Make A Difference, But Lots Of Coincidence

—By Mary Weddle, WC4T
Mecklenburg ARS, Charlotte

It was not a surprise, because both of us had heard of the other, but when I finally met her at the Charlotte Hamfest, it was the culmination of a curious search, to meet the other person caught up in the same coincidence with me...and I came away with a dear new friend.

It all started about a year ago, when one of our Charlotte traveling-salesman-hams squawked a scratchy signal into one of our Charlotte repeaters. "Hey Mary! I've just left the

Roanoke area, and there's a lady up there with the same name as yours, and almost the same call!" "Oh Sure!" I replied, bracing myself for another of those slick jokes someone is always pulling. His signal was full quieting now..."Her name is Mary Waddell, and her call is WC4A; your name is Mary Weddle, and your call is WC4T; now don't you think that is an amazing coincidence?" I ran to look in the callbook, and there she was, in Blue Ridge, Virginia.

In November, at the Greensboro Hamfest, we met Jack, WA4V, her husband. I sent word that I was anxious to meet her. When someone tapped me on the shoulder in the Civic Center in Charlotte, and I turned to see the petite, attractive burnette lady, it was immediate recognition. Before she could tell me, I knew who she was!



It was a pleasant reunion at the Charlotte Hamfest for Mary, WC4A, and Mary, WC4T. The two talked about their common likeness of calls and names — and the confusion that reigns when people talk about them when someone else knows both of them.

Level of Profile: Still Higher?

—By J. Tom Park
Tenn. Vice-Director

As a coordinator I quite often get requests from a repeater owner to increase his coverage area. Sometimes this increase is needed, but many times it is not. Too many times an operator does not consider the true area that he needs to cover. Sometimes a certain district is not covered properly, but in the urban areas this is seldom the case. (Almost every major town in Tennessee has at least two 2 meter repeaters plus 220 and 440 machines. Plus the overlap from adjoining towns.)

If you are considering a power in crease, a much improved receiver or an increase in antenna height, please consider the needs of the area just as if you were a commercial station that had to present a statement on need to the FCC to get a license. Consider: 1) Potential user population 2) Total coverage area needed 3) needs of local Civil Defense & others 4) Autopatch quality 5) How well are other repeaters already fulfilling these needs?

Since 2 meters is almost full in many areas, we can no longer have all of our machines operating as high profile repeaters. Many times a repeater can be operated as a medium or even low profile machine and cover the desired area better because of less interference from distant stations working other repeaters.

I would like to congratulate WD4BKY for looking at the needs of the Sumner County area. At one time, his 147.87 / .27 repeater covered several counties but it had few users outside Sumner County. This repeater has now been moved to a new site closer to its main users. In so doing, it went from a medium profile to a low profile, yet it is doing its job better due to a more central location and less interference from distant stations.

If any of this sounds good to you, talk it over with your club or users group - then talk to your local CVRA-SERA coordinator, he will be glad to help!

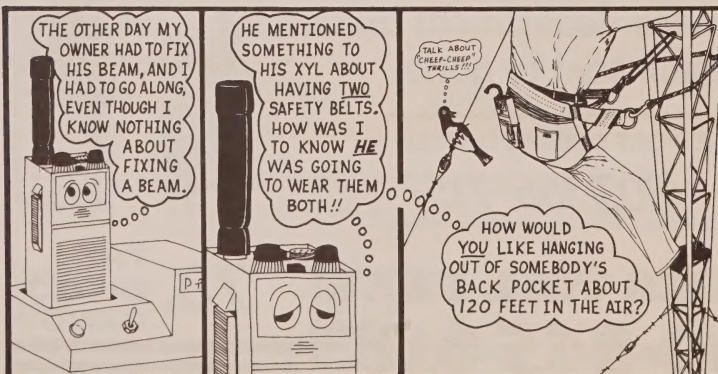
No Savannah Hamfest

Andy Blackburn, WD4AFY, activities chairman of the Radio Club of Savannah (Ga.) wrote the Journal that there will be no Savannah Hamfest this year. The event was held in October last year.

National Hollerin' Contest

The 16th annual National Hollerin' Contest will be held at Spivey's Corner, North Carolina on June 16th. "Judge", WA4LZD hopes to see lots of you there, either for Hollerin' or for Possum Trottin'...whichever your pleasure.

Stubby by Fred Hurteau, WD4SKH



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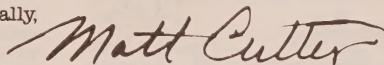
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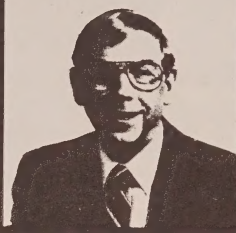
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The Other End of the Phone Patch



Frank Myers of Winston-Salem (NC) talks home from Honduras via "Dr. Sam's" WB7ARA/HR5 radio to Tink Kenoy's (W4DCW) transceiver in Winston-Salem and a phone patch to home. The Winston-Salem men's only contact with home from Ahuas in Eastern Honduras' bush was by Amateur Radio.

—by Holli Nelson, KB4AKM

"Hi Marsh, how are you and the kids... love you all, see you soon..." Nothing unusual about such an exchange by phone with my wife. Idle chit-chat, no message of substance, but the exchange makes a day so much better and temporary separations so much easier. Difference: this one was by ham radio and I was in Ahuas, Honduras rather than New York City, Charlotte, or Athens, Ga. The phone was not a choice—Ahuas has no phones. In fact, Ahuas has no roads, no cars, no trucks, no electricity or running water or indoor potties outside the clinic compound. The water runs only as long as the water towers (4 to 6 55-gal. drums on a tower) stay full, and the pumps require electricity. Electricity depends on the generator which is shut down during the noon siesta, after afternoon surgery is done at the clinic, and from 9 p.m. til 9 a.m. There is neither a road nor a wire into or out of Ahuas.

Ahuas does have about 3000 Miskito

Indians in the immediate vicinity, a Moravian mission hospital, eight permanent party North Americans and their families living in the mission compound, and enough biting bugs to make one wonder how there could be any left for North Carolina in the summer. Contact with the



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AHUAS, DEPTO. GRACIAS A DIOS
HONDURAS

OP. "DR. SAM" (SAMUEL B. MARX)

outside world is by radio and airplane. The airline DC-3 generally comes once a week, on Wednesday, carrying people and freight. Sometimes it is late (Sunday), or it misses the stop altogether. Missionary Aviation Fellowship provides air service on an as needed and available basis. Ahuas is remote—it is the bush, the out back, one of those chunks of the world that, at first glance, seems forgotten by both man and God.

I was one of eight men from Winston-Salem who went out to Ahuas for two weeks on a team to repair mission equipment and buildings, and to reassure the folks out there, both "Gringo" and Miskito, that they are not forgotten by man or God.

Dr. Samuel B. ("Dr. Sam") Marx, WB7ARA/HR5, fires up the TR4C about noon and 5:00 p.m. six days a week to provide radio/phone patch contact with the rest of the world. Tink Kanoy (W4DCW) and Norm Byerly (N4ANE) are on in Winston-Salem for each schedule—others are as faithful in Bethlehem, Pa. and elsewhere. The traffic may be of the "Hi Honey, I love you..." nature, or the announcement of the birth of a new grandchild to anxious grandparents in the States, the coordination of building or medical teams going out there, or arranging for a drive belt for the generator, or replacement glasses for a missionary's wife to be sent out with one of the few travellers who go to Ahuas. In the bush amateur radio goes beyond hobby radio—it is necessity radio. I was there but two weeks; how sweet Tink's and Norm's voices were, a casual "Hi, Steve" with KA4YMY squeezed out some of the feeling of isolation. The sweetest sounds and the biggest morale booster was the few minutes of idle chatter with one wife and two kids at home.

Thanks. Thanks to all you guys and gals who run patches for missionaries, mariners, health workers, geologists, agricultural advisors, soldiers, building teams, disaster relief teams—all of us who find ourselves with one way to talk home. You are heroes, though seldom sung, to those who have crossed the boundary of civilization.

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Commemorative Callsigns For NC Amateurs Denied

The FCC has notified Rae Everhart, K4SWN, SM for North Carolina that his request for special commemorative callsigns for North Carolina Amateurs has been denied.

Rae had filed a request for waiver of FCC rules on callsigns to allow Amateurs in North Carolina to use the 400 in lieu of 4 in their callsigns to help celebrate America's 400th Anniversary beginning July 13, 1984 at Manteo, N.C.

WEST VIRGINIA NOTES

By: Ted Wolfe, WD4KHL

Serving the Plateau Amateur Radio Club as officers for 1984 are: James Witt, WB0QC, President; Joe Roberts, KA8IBO, Vice President; R. C. Godsey, N8EQC, Treasurer; and Stan Goff, K8BDH, Secretary. PARC sponsors the annual February hamfest in Fayetteville, WV.

At this year's hamfest on Sunday, FEB. 26, I talked with two repeater owners about joining the CVRA/SERA as full members. While there I also learned that the call on the Mullens repeater KC8IT. Other hams told me the Pie/Horsepen Mountain repeater has been inoperative for some time. I'll have to check with the listed owner to determine if he intends to surrender the frequency pair so it can be assigned elsewhere.

The ARRL Roanoke Division League Planning Meeting is scheduled May 12-13 at the Ramada Inn in South Charleston, WV.

I had to revise my copy at the last minute to reflect a change in the date for the annual West Virginia state ARRL convention and Hamfest at Jackson's Mill, near Weston, WV. It usually is held on the first full weekend in July. But this year it has been changed to Saturday, June 30 and Sunday, July 1. In future years I hope it returns to the old schedule for "the first full weekend in July" was easy to remember.

Several of the items in this report are rewrites of material in the Roanoke Division ARRL newsletter from Director Gay E. Milius, Jr., W4UG. It is an informational mailing. Thanks, Gay!

West Virginia ARRL Section Manager for West Virginia, Karl Thompson, K8KT, Charleston, has won the Roanoke Division's ARRL Service Award for 1983. Present holders of the award make the selection each year. The award is not another Amateur of the Year thing as the criteria for selection extends back for as long as the individual has been licensed as an amateur.

The Monday, Feb. 13, Beckley Post-Herald had a nice write up with picture of Dean Phoebe, KC8FC, and information about Beckley's Black Diamond Amateur Radio Club. The club held novice classes during the Spring with some two dozen enrolled for the classes held at the Federal Mine Academy at Beckley.

The club sponsors the 146.85 repeater on Flat Top Mountain South of Beckley. KD8IO now has his MSO operating on the Flat Top machine.

I haven't visited the Mine Academy yet but I've heard a lot about the facility. Mining personnel from all across the country come to Beckley for a week or two to learn more about their jobs. The Academy has a fully equipped Amateur Radio Station on campus and any student is welcome to use the station upon demonstrating that he is, indeed, a licensed amateur.

Jerry, W47RYS, Salt Lake City, Utah, was enrolled for two weeks in early March and used the 2-meter facilities for a number of contacts while in the area. When many of our hams who are miners learned Jerry is a Federal Mine inspector out west their interest was piqued.

Jerry advised them, however, that he isn't into coal. He inspects gold, silver and copper mines.

A Huntington group has proposed a new RTTY-dedicated 2-meter repeater for that city. They've requested 144.61/145.21. The call on the machine will be WB8FEQ.

The call on the Bolt Mountain 144.57/145.17 repeater has been changed to KD8X. Don, WB8LVH, whose call used to be on the repeater, has moved to the Atlanta area to work.

Hams may be interested in reading James Bamford's "The Puzzle Palace" which is about the National Security Agency. The description of some of the agency's antenna farms and antenna types (Wullenwebers, CDAA, folded monopoles and sleeve monopoles, etc) is interesting, I thought, although -- since I'm no technician -- I don't know whether any would have applications on the frequencies we work.

Speaking of antennas, I've heard a lot of talk on 2-meters by hams in this area who are building and experimenting with J-poles. Jose, KA8LSE, had some of his efforts on display at his flea market table at the Fayetteville hamfest. The resident "expert" in this area on the DRRR antenna is Cal While, W8ZHN, Charleston.

My thanks to W. C. Spenn, KD5AK, San Antonio, Texas, who sends me a copy each month of the Datapoint Amateurs and Technicians Association (DATA) club newsletter.

The FCC has begun to move to name the Volunteer Examiner Coordinators in the various call regions. As this was written I hadn't heard who will head the VEC for the 4th call area, but for the 8th call area it will be the Dayton (Ohio) Amateur Radio Association. DARA will coordinate the Volunteer Examiners for Ohio, Michigan, and West Virginia.

On March 5 at 8:01 a.m. MacMcMillian, WD8OZT, and his wife were crossing the 34th Street bridge in Charleston when they noted on a street below -- Kanawha Boulevard -- and several blocks West that a pickup truck had climbed an 18-inch high curb while headed East on the Boulevard and had tumbled into the Kanawha River.

Mac grabbed his 2-meter microphone and tried to use the direct access to law enforcement feature on a Valley repeater but was unable to access the feature. He called for an emergency traffic relay and Mary Haynes, WB8MAV, St. Albans, put down her coffee cup

and made the relay for Mac and alerted the police to the accident.

The out-of-state driver of the pickup, reportedly enroute from Florida to Raleigh County, WV, unfortunately drowned. But it was not because of any delay in alerting authorities. Other witnesses close to the scene had jumped into the River but were unable to effect a rescue in time.

Leo Harmon, WB8DRO, formerly of Charleston and now living at Lake Helen, Florida, was back in the area in March and talked over a number of repeaters with friends in the Valley.

The Putnam Amateur Radio Association's computer workshop on February 10 was a success. The PARA-NEWS for March reported a PARA membership increase of 100 percent since September. Membership was up to 50, with the new Fiscal Year beginning April 1.

The Circle Calling feature of PARA's Scott Depot 147.87/27 repeater was discontinued because of little usage. The local autopatch, however, continues to be well used.

PARA is looking for volunteer technicians to help install and maintain a second repeater which will be linked with the K8SLI (147.27) machine to extend mobile range.

The West Virginia Phone Net has decided to remain on 3900 Khz.

In future national emergencies Amateur Radio is to immediately become a part of Civil Defense (what is the proper title for the office now--Office of Emergency Preparedness???). Are you now a member of ARES in your local area?

In a short Editor's note in the B-N-T mention was made of some wording and two frequencies buried in the appendix of the related Doctet. You may wish to jot these down somewhere: 3997 and 53.30 for use in emergency areas when required to make initial contact with a military unit; also for communications with military stations on matters requiring coordination. Time to join ARES is now.



Karl Thompson, K8KT, Charleston (right) has been selected to receive the Roanoke Division, ARRL, Service Award for 1983. Karl is Section Manager for West Virginia. The ham on the left is Gay Milius, Jr., W4UG, Director of the Roanoke Division, ARRL. The two were managing the ARRL both at the WV Convention and Hamfest at Jackson's Mill when the picture was taken. The 1984 event at Jackson's Mill will be June 30 and July 1. Photo by WD4KHL

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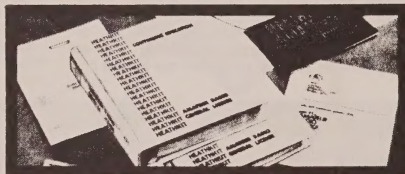
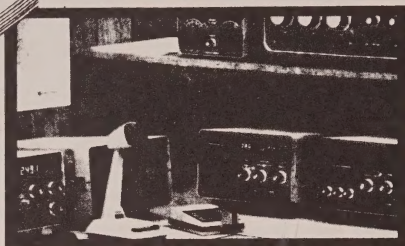
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Wayne Cline, WB8IHA, a blind student recently transferred from Potomac State College at Keyser, to West Virginia State College, Institute, WV, where he is a Junior pursuing a degree in social work. He lives at the Heartland Nursing Home in Kanawha City. Garry White, WD80MB; Doug Sweeney, N8AJC; and Don Craig, Jr., KA8KVD, recently donated an afternoon of their time to put up a 2-meter antenna on the two-story brick building so Wayne could work area repeaters. They'll probably be erecting an H-F antenna for Wayne later. Hams help Hams.

•••••

Terry North, WB8IFS, whose call is now on his 146.22/82 repeater in Charleston, has moved the transmitter to his home in the South Hills area. The receiver is still on Coal Branch Heights. Terry plans another receiver which will be placed on Bee Mountain near Marmet at the site where the transmitter used to be. The split site repeater is linked via 440 Mhz.

•••••

The WB8CQV 146.28/88 repeater in Charleston was one of nearly 200 amateur radio service repeaters tied together for the North American Teleconference Net on March 8. The two hour program featured a panel of attorneys who are also amateurs. They discussed the topic "Amateur Radio and the Law." The next N-A-T-N hookup will be on Thursday, June 21. The topic then will be "Multi-band Antennas."

•••••

Ed Sutton, WA8FLF, Charleston, won the second prize at the Charlotte, NC, hamfest (March 17-18). He won an Icom transceiver worth more than one thousand dollars.

•••••

The WD8DRV 146.37/97 repeater is back on. It was put in a new and secure transmitter building on Ward Rock Mountain above the city of Logan. This machine has been plagued by troubles in the past few years. First it lost its site on Blair Mountain and it took over a year to relocate to Ward Rock Mountain. When it resumed operation last summer it lasted only three weeks before someone broke into the transmitter building and wrecked the repeater. That's why the Logan club built a new transmitter building.

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The Huntington WB8EZR 146.04/64 repeater is operational again. The old repeater was destroyed in a fire at the Channel 13 WOWK-TV transmitter building. The TV station was also off the air several days after the fire.

•••••

Winners of the ARRL Roanoke Division newsletter competition for 1983 were—in Category 2B—Triple States/RAC 'B-N-T' and Mecklenburg ARS 'News'. The B-N-T is edited by Ralph McDonough, KBAN, and the News by Mary Weddle, WC4T and Clyde Weddle, KF4WY. The two clubs tied for first place in that category. Another winner in West Virginia was "Loud 'N Clear," edited by Robert D. Morris, WA8CTO, for the Jackson County ARC.

Incidentally, TSRAC serves Eastern Ohio, the Northern panhandle of West Virginia, and Western Pennsylvania. It has well over one thousand members scattered all across the country.

From TSRAC: A note that as of March 1 the new address of the Detroit office of the FCC changed to 24897 Hathaway, Farmington Hills, Michigan, 48018. The telephone number remains the same.

•••••

I understand Mike Palmer, K8LG, Morgantown, and several others are into Packet communications in the University city, using 1200 baud, Tucson ARC protocol. Mike is Vice Director, North, CVRA/SERA in West Virginia. Maybe Mike can be persuaded to write up something on the subject for the Journal.

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Standard Time -- How It Came To Be

—by George Hinds, N8CIX
ctsy LEARA News, Clev., Oh.

Prior to the adoption of Standard Time in 1883, local times were based upon "sun time." This was determined by the sun's passing directly overhead at noon. In fact, there were more than 50 "time zones" in our nation!

Many cities adopted a time standard based on noon at city hall, or some other arbitrary location. Others adopted the time used by whatever railroad served that city. If it was 11:34 in Toledo, it was 11:17 in Chicago and 10:27 at Milwaukee. And it was 12:07 in Philadelphia.

Late in the 19th century, Congress (and most of the population) were hopelessly entangled in the maze of times prevailing throughout the United States. Neighboring cities had different times; the railroads usually ran on their own times, and confusion reigned supreme.

Eventually, the railroads took matters into their own hands and determined to

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adopt "Standard Time Zones." The man generally credited with devising standard time was William F. Allen, editor of the "Official Railway Guide." He had to deal with such time plans as, for example, existed in Chicago, where the New York Central and the Pennsylvania Railroads used Columbus, Ohio, time, which was six minutes ahead of Cincinnati time and 19 minutes faster than local Chicago city time.

The Union Pacific Railroad operated on at least six different time standards based on noontime in Omaha, Jefferson City, Mo., St. Joseph, Mo., Denver, Laramie, Wyo., and Salt Lake City. In fact, before the adoption of Standard Time in 1883, a traveler going from Maine to California had to change his watch 20 times to correspond to railroad time on the journey.

Allen drew the time zone lines to coordinate with the largest railroad switch yards, recognizing the commercial practicality of such an approach. Politicians rose up in a furore over the plan, claiming that it would cause widespread illness among the populace, disrupt the barnyard animals, etc., etc.

Nevertheless, the railroads were

determined to go ahead with the plan; notices were widely posted that on November 18, 1883, (Sunday) at noon, all local times would be abandoned and Standard Time pretty much as we know it today would be adopted and would therefore govern the railroads and the nation. But Cincinnati held out for seven years before adopting Standard Time; Washington, D.C. and Chicago (and Bangor, Maine) were also holdouts but not for so long a time.

When telegraph sounders across the nation flashed the noon time, so too did many town bells ring -- twice -- once for the old local time, and again for the new Standard Time. Today, in the Union Station in Washington, D.C., there is still a plaque that was placed in 1933 - 50 years after the adoption of Standard Time - honoring William F. Allen as the father of Standard Time in our nation.

Of course, Allen (and the railroads) had no authority to change the hands on the face of every clock in America - but then, there was in fact no authority in existence for the existing "local times" that prevailed and Congress had illustrated that they could not cope with and resolve the problem. It was simply an outmoded custom that was long overdue for changing. It was changed that Sunday in 1883....



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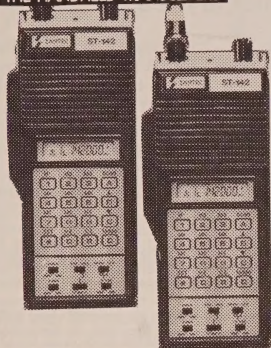
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THE FOUNDATION FOR AMATEUR RADIO, INC., a non-profit organization with Headquarters in Washington, D.C. plans to award fifteen (15) scholarships for the academic year 1984-85. The Foundation composed of fifty local area amateur radio clubs, fully funds two of these scholarships from the proceeds of its annual Hamfest. It administers without cost to the donors, three scholarships for the Quarter Century Wireless Association, two for the Dade (FL) Radio Club and one each for the Radio Club of America, the Richard G. Chichester Memorial, the Young Ladies' Radio League, the Edmund B. Redington Memorial, the Amateur Radio News Service, the Columbia (MD) Amateur Radio Association, the Baltimore (MD) Amateur Radio Club and the Lewis G. Wilkinson Memorial.

Licensed Radio Amateurs may compete for one or more of these awards if they plan to pursue a full-time course of

studies beyond high school and are enrolled or have been accepted for enrollment in an accredited university, college or technical school. Most of the scholarships require the applicant to hold at least an FCC General Class license or equivalent. The scholarship awards range from \$350 to \$900 with preference given in some cases to residents of specified geographical areas or the pursuit of certain study programs.

Additional information and an application form can be requested by a letter or QSL/postcard, postmarked prior to May 31, 1984 from:

F A R Scholarships
6903 Rhode Island Avenue
College Park, Maryland 20740

The foundation is devoted exclusively to promoting the interests of Amateur Radio and to those scientific, literary and educational pursuits that advance the purposes of the Amateur Radio Service.

CATV Leakage Problems Information Sheets Available Free

The FCC has released several check sheets written by CATV technicians who are trained to detect and correct cable leakage problems. These sheets which go into detail of how to remedy CATV leakage and interference problems may be reprinted by permission of the CATV company whose engineers designed the sheets.

The FCC from its Norfolk office has made a copy of these check sheets to the CVRA-SERA Repeater Journal staff.

If you would like a copy of this information, (5-pages) send a S.A.S.E. (20¢ postage affixed) to Wayne C. Williams, Editor, 600 Lakedale Road, Colfax, N.C. 27235. We'll be glad to xerox you copies and return them to you.

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W5LFL
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AMSAT

STS-9/Spacelab-1

ARRL Headquarters reports that all QSLs for the historic W5LFL spaceflight have been mailed out. Over three hundred Amateurs received 2-way QSLs when it was found that their call signs were confirmed as being on the taped receive records of Owen Garriott. Over 10,000 1-Way SWL-type QSLs were mailed to SWLs and Amateurs who reported hearing the spacecraft on one of its orbital transmissions by W5LFL. The card of

regular QSL size, opens up to double size. On the front (pictured above) the STS-9/Spacelab-1 in flight. On the back, A picture of Owen Garriott in communication with his H/T and recorder in hand. The inside of the card gives statistics of the Columbia flight and describes W5LFL's radio and frequencies operated. One side has the printed signature of Owen as he acknowledges the QSL.

Keeping Touch From The Appalachian Trail

—By: Bill Wiggins, N4BMR

The Appalachian Trail is a marked, hiking trail winding over 2100 miles from Springer Mountain, Georgia to Mount Katahdin in Maine. Most of the trail is through National and State Forest, and many miles are through remote mountain areas.

Each year, hundreds of backpackers hike on the trail; some hike only short segments for periods of two or three days, while others cover the entire 2100 miles. Forestry officials and volunteers who maintain the trail recommend against hiking alone because of the dangers of accident inherent in hiking over rough terrain.

As many "CVRA" members 'heard' on repeaters in Georgia, the Carolinas, and Tennessee, I hiked a 450 mile segment of the trail this spring. Amateur Radio played an important part in my hike. From the time I left Springer Mountain on May 8 until I reached Damascus, Virginia on June 10, 1983, I had almost daily contact with my support team which consisted of XYL, Nancy, in charge of "transportation and supplies", and Nita Morgan, N4DON, who served as "Chief of Communications". By having my handheld 2-meter rig and a network of repeaters to use in case of emergency, I was able to hike alone confident if I needed assistance I could get it without delay.

Ham radio first came into play on Saturday, May 7, when I drove through Franklin, N.C. to drop off my first food supply package. (I had prepared 8-day food supply packages to be picked up along the trail.) I was talking about my hike on the 147.84/24 repeater when Jack, K2BHQ, broke in and told me he also was a backpacker. When he learned I was coming back through on my hike, he volunteered to help me with transpor-

tation from the trail at Winding Stair Gap on Highway 64 into Franklin and back to the trail. Sure enough, at the end on my 8th day of hiking, I made arrangements through the Franklin repeater to meet Bob, W4GHZ for transportation into Franklin. After a refreshing shower and breakfast with Bob and Jack, I picked up my supplies and Jack took me back to the trail for the continuation of my journey.

My main communications problems were:

1. Keeping my radio dry, and
2. Keeping a charged battery available.

I solved the first problem by keeping my rig 'double' wrapped in plastic bags at all times it was not in use. The second problem was solved most of the time by having Nancy bring or mail a charged battery to me each week. Nancy met me for "R & R" breaks at the end of the second and fourth weeks at Fontanna Dam, N.C. and Erwin, Tennessee.

Unfortunately, the Mail Service was not too faithful (Hard for a retired Postal Employee to admit). A battery Jack charged and mailed to me from Franklin on Tuesday did not make the trip to Fontanna Dam as fast as I had hiked it. I got there on Friday and the battery still had not arrived on Saturday. Even worse, it was not forwarded to Hot Springs, N.C. by the next Saturday, nor back to Signal Mountain, TN in a timely fashion. It floated around in the Postal System from May 17 until June 19. A week after I returned home, it finally showed up. I was short one spare battery on my trip.

Keeping in touch with my supply officer was no problem, thanks to my volunteer communications chief, Nita, N4DON and the excellent network of two meter repeaters scattered along the segment of the trail I hiked. Each day, as I crossed over the higher peaks, I would

take a break and call Nita. She had agreed to scan two or three repeaters near where I was hiking. The system was almost foolproof and I only failed to make contact four out of 35 days (two because of dead batteries). Other solo hikers who saw my emergency communications capabilities would get out ahead of me in the mornings knowing that if they had a problem, I would be coming along and could call for help. I was able to make auto-patch contacts into Chattanooga 146.19/79 repeater from Standing Indian, Wayah Bald, and Clingman's Dome.

Fortunately, my only emergency was minor. On Tuesday of my 5th week, I lost my glasses. I put out a call (Kingsport, TN repeater, I think) and explained by dilemma to Beth, N4NGU. In less than an hour, a message had been relayed through Knoxville and Chattanooga to my wife Nancy and I had confirmation she would mail me a replacement pair.

A few days after I returned home, I read about a hiker in the Great Smokey Mountain Park who strayed off the trail, fell and broke his leg, and crawled four days before being found. I thought how different his rescue could have been if he had been a licensed Amateur carrying a two-meter rig.

In summary, my two meter rig gave me a real sense of security during my 450 mile backpacking trek. I extend a hearty "THANKS" to clubs and repeater maintenance groups, repeater trustees and individual hams who made it possible for me to keep my wife up to date on my hiking progress.

I suggest that the "CVRA" might prepare a map of the area the Appalachian Trail passes through showing the location of repeaters that can be worked by hand held transceivers from the trail. Such a map would be of great help to hiking hams.

March Directors Meeting Minutes

The Board of Directors of the CVRA-South Eastern Repeater Association met March 17, 1984 in Charlotte, N.C. The meeting was called to order by President Carter Cogle, K4ARO, at 5:30 p.m. Directors from the states of W. Virginia, Tennessee, North Carolina and Virginia were present.

Wayne Williams, K4MOB, reported 304 repeaters have renewed membership to date. Jim Fitzgerald is mailing all states delinquent notices and every repeater will have been contacted by the end of March. Wayne complimented Jim on the good job he is doing as Vice President.

Wayne had the new forms voted on in Roanoke, with the exception of the band plan, for Directors to pick up copies at the end of the meeting.

Carter announced the topics of the called meeting was to decide on the band plan and whether or not to list repeaters which do not conform to the band plan.

Sam Kirby, WB4HAP, Tennessee

Director, passed out a financial report from the Treasurer, Ray Adams, who was unable to attend the meeting.

The Directors voted to leave the 10 meter, 2 meter and 220 MHz band plan listings as they were. 52.39 MHz and 52.41 MHz will be dropped from the 6 meter listing. After discussion, the Directors also decided to leave the 440 MHz band as it was - high in and low out.

Wayne reported a non-band plan repeater in North Carolina, which has been upside down for years, has had problems with locking up with other repeaters. Jerry Freeman said if the Journal publishes the frequency, it is approving the frequency. After much discussion, Sam Kirby read part of a disclaimer published in the Journal. It states, "Our lists contain certain repeaters which are not on the band plan or are uncoordinated solely to keep our readers informed of all repeaters. CVRA-SERA does not necessarily condone or favor such repeaters."

Sam made a motion to leave the disclaimer in the Journal and list frequencies not conforming to the band plan

with "NB". The motion was seconded by Karl Morris, V. Director-South of W. Virginia, and passed.

The meeting adjourned at 6:30 p.m. Respectfully submitted, Nita Morgan, N4DON, Secretary.

Directors Hold Special Meet At Charlotte Show

CVRA-SERA Directors met in March at the Charlotte Hamfest to nail down a few remaining questions concerning the official bandplan of the organization.

Copies of the bandplans had been mailed to each official earlier, so little time was spent in discussion. Each UHF/VHF bandplan was approved by the Directors.

Our bandplans are very similar to the official ARRL bandplan for the eastern half of the United States, with a few exceptions. Generally the inputs and outputs follow the trend of ARRL's plan.

The Repeater Journal is printing all the recognized official bandplans of CVRA-SERA in this issue. Readers are urged to save copies for future use.

REPEATER-CLUB-NET SERVICE PAGE

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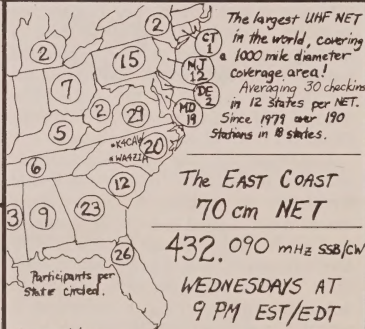
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Effective 1 January 1984

The Repeater Journal is a 3 column magazine with overall page dimension of 8 1/2 x 11 inches. Our page size enables a wide variety of ad sizes from full page down to one column inch size.

Column Widths are 1 col: 2-1/4-in., 1-1/2 col: 3-1/2-in., 2 col: 4-5/8-in., 3 col: 7-1/8-in. Ad widths will be based only with the specified column widths.

DEADLINES: New advertising copy must be in the hands of our Advertising Manager no later than the first of the month prior to publication month.

DEADLINES

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AUG. Issue - Jul. 1 NOV Issue - Oct. 1

If we have not received new ad copy from you, your ad published in the previous issue will be repeated at the standard advertising rate.

CVRA REPEATER JOURNAL advertising rates apply to exact size, camera ready copy. We can provide typesetting and reduce art for your ad at our cost. Composition and typesetting for full page ad approximately \$25 to \$28. Half page ad from \$12 to \$15. Reduction of artwork for ad with no type needed is \$4.50. For color ads (One additional color plus black) add \$25.00.

The Repeater Journal layout size is very close to most National magazines. If you wish to use a page from one of the magazines, to promote your product, we can reshoot on the camera, insert your store name and customize for your particular

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The CVRA REPEATER JOURNAL cannot be responsible for errors in advertising, or held accountable for equipment or accessories that do not live up to the advertised claim. We are not responsible and cannot guarantee insertion of advertising received after deadline.

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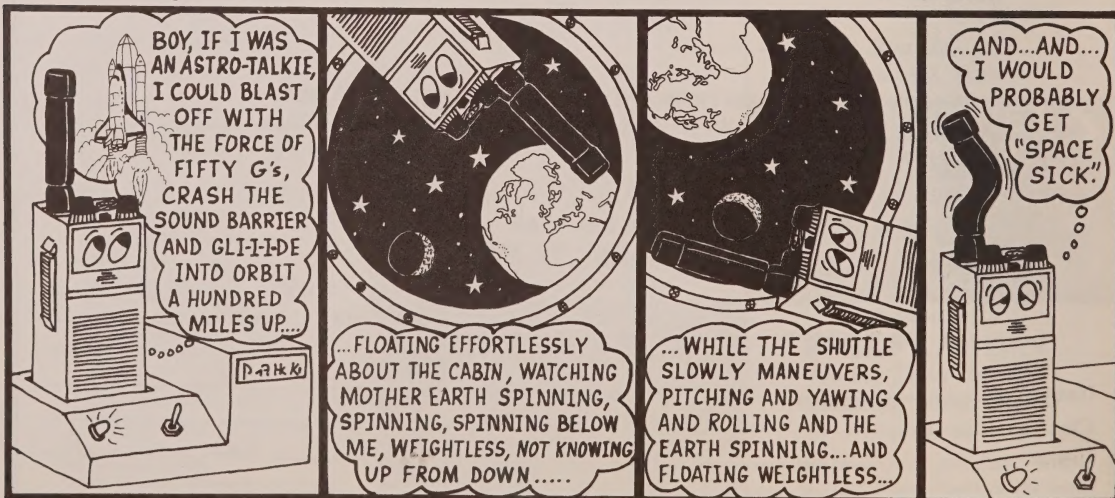
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Stubby by Fred Hurteau, WD4SKH



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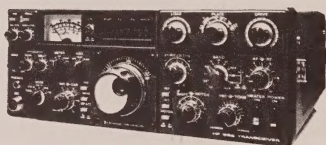
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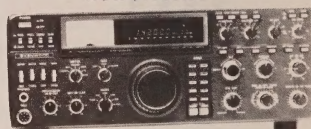


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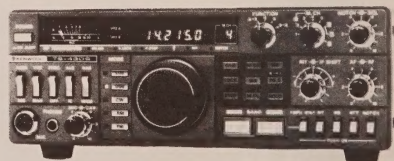
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District Ramblings

GALLATIN, TN. - Richard WD4BKY, is proud to announce that his 87-27 repeater has recently become affiliated with the Communications and Transmitting Society, Inc. (CATS). He says that he has moved his coordinated repeater to a new, more centralized location for Gallatin, Hendersonville and Portland. (The new location is to a lower profile position so as to have less interference and more complete coverage) Future plans include back-up power and an autopatch for members and out-of-towners. (Tom, WD4KWP)

RICHMOND, VA. The Richmond K4ARO repeater (K4ARO, K4OJE and N4EHJ operated) has vacated 444.500 for the newly coordinated frequency of 449.65-444.65 which will avoid some user occasional interference with another repeater and allow a substantial height increase for the antenna. A new 70 cm Station-master antenna is being installed and expanded coverage in the Ashland-Richmond-Petersburg area is anticipated. (Jim, K4OJE)

ROCKY MT., N.C. A 440 UHF repeater will soon be on the air in the Rocky Mount area. The coordinated frequencies for the repeater are 449.70-444.70. The machine is a 100-watt Motorola tube-type connected to a Phelps-Dodge duplexer and a DB Products 16'-array antenna. At present time the location of the machine has not been selected. The full member repeater is owned and operated by N4JEH, and Carl Briley and WN4Z, A.B. Gentry. More information later. (Carl, N4JEH)

RICHMOND, VA. A new repeater on 449.40-444.40 has begun operations from a temporary location near downtown Richmond pending completion of antenna facilities on a broadcast tower, at which time the N4HB repeater will be moved. (Jim, K4OJE)

CHATTANOOGA, TN. The CTSFMA held their annual chili supper around the first of March. Ray, N4BAQ, and Sam, WB4HAP and XYL's drove down from Knoxville for the festivities. Approaching Chattanooga they were prematurely greeted with a taped message on the 19-79 repeater that went something like this: "Be sure to attend our chili supper this week. Among those in attendance will be Dr. Ray Adams and Dr. Sam Kirby of the Carolina-Virginia Resuscitation Association" (CVRA???) ...Very Funny! I guess they figured they might need doctors after serving the chili. Can you believe some members actually thought us doctors? Anyway, as things turned out, Nita's chili and Barbara's presidential expertise made the evening a gastronomical success! (Sam...urpl, WB4HAP)

RICHMOND, VA. A new 2-meter on 51-11 was turned on in March for operation on an 11-story building in downtown Richmond. The Central Virginia ARS is owner and operator of the coordinated machine. (Jim, K4OJE)

HERMITAGE, TN. - If you are part of that special group that is trying to keep 220 mhz. as a ham band (and enjoying doing it), you will be interested in the WB4RAB machine in Hermitage (Nashville). Jim has had his 222.30-223.90 repeater on the air for over a year, but he reports that he has finally gotten his new electronic signal products receiver into the machine. He says that the new receiver is able to hear the Greater Nashville area much better now.

RICHMOND, VA. - Richmond's first 6-meter repeater is operating from a site atop the Imperial Plaza building in NW Richmond on the coordinated frequency of 52.43-53.43. The call is K4ANNN repeater. (Jim, K4OJE)

NASHVILLE, TN. - CQ DX CQ DX. The WD4FFM DX reporting repeater has moved to 705-105. Check with N4WF for DX info. (Tom, WD4KWP)

VIEW PARK HILL, KNOXVILLE, TN. - Even as you read this, Tim "Celwave" Berry WB4GBI, alias Tim "Phelps-Dodge" Berry will be installing his new Celwave duplexer on the 449.70-444.70 repeater. I don't know how you feel Tim, but Celwave just sounds cheaper than Phelps-Dodge to me. And that black paint, UGH! I liked the gray much better. They say that duplexer has so much isolation that it's like moving the transmitter to the next county. Bye, bye desense, hello Emma. (Sam, WB4HAP)

AREA HAMFESTS... Be looking for your CVRA SERA booth at each one. Be sure to stop and say hello, air your gripes, and renew your membership. We love to talk repeaters. (Your Directors)

RICHMOND, VA. The Virginia ARA has joined with the Telephone Pioneers RC for joint sponsorship of the 04-64 repeater in Richmond. A new antenna is being installed and a phone patch is planned for the near future. Voice ID being changed to CW. (Jim, K4OJE)

GREENEVILLE, TN. - Motorola strikes again! The 81-41 Greenville repeater, WB4TUO has upgraded to Micor equipment and boy it's sounding good from it's 5,000-foot perch. (Sam, WB4HAP)

A Quick Fix For Unstable VHF Engineering 2-Meter Receivers Using The RF144 "D" Front End Board

—by Herman Cone, WB4DBB
Technical Editor

RF Amplifier Q1 tends to oscillate in this front end, and this 7-10 mHz oscillation can cause numerous problems, including lower sensitivity, strange sounds, and reception of unwanted signals due to their mixing with the oscillation and its harmonics.

This fix applies only to the later "D" front-end which uses small plastic slug-tuned coils, and is not applicable to the earlier models which use several air variable capacitors. It improves sensitivity somewhat by killing the oscillation. This will greatly improve receiver performance in repeater service.

This modification is performed in two simple steps:

(1) Tack solder a 15K ohm resistor across R3 (22K ohm), or replace R3 with a 8.2K or 10K ohm resistor. Use ¼-watt size.

(2) Add a small 0.1 uf disc capacitor across C6 or R2, using short leads.

That's all there is to it. Slight re-tuning of the front end may be necessary for optimum performance.

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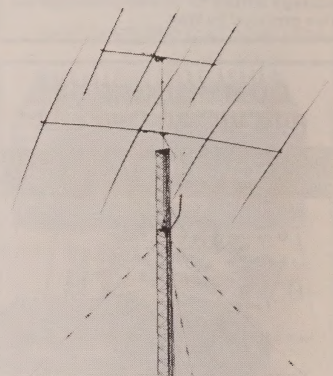
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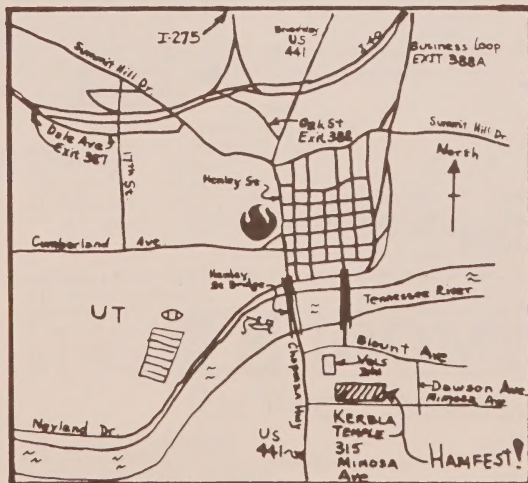
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Coming Events

1984 HAMFEST DATES

MAY

- 5-6..... Hamfest, GREENVILLE, S.C.
- 12-13*..... Hamfest, BIRMINGHAM, ALA.
- 19-20*..... Hamfest, LAKE HARTWELL, GA.
- 19..... Durhamfest, DURHAM, N.C.
- 19*..... Hamfest, DALTON, GA.
- 20*..... Hamfest, GASTONIA, N.C.
- 26-27..... Hamfest, KNOXVILLE, TN.
- 27..... Hamfest, ROANOKE, VA.
- 27*..... Hamfest, HARMANS, MD.

JUNE

- 3..... Ole Virginia Hams Hamfest, MANASSAS, VA.
- 3*..... Hamfest, HUMBOLT, TN.
- 3*..... Tri-State ARA Hamfest, HUNTINGTON, WVA.
- 16-17..... Hamvention, ATLANTA, GA.
- June 30 - July 1.... WVAST. Radio Conv. JACKSON'S MILL, WVA.

JULY

- 14-15..... John Ross Tradefest, ROSSVILLE, GA.
- 14-15..... Hamfest, CHARLESTON, S.C.
- 21..... Summer Swapfest, CARY, N.C.
- 21*..... Hamfest, ANNISTON, ALA.
- 21-22*..... Hamfest, CROSSVILLE, TN.
- 22..... TSRAC Hamfest, WHEELING, WVA.
- 28-29..... Hamfest, ASHEVILLE, N.C.
- 29*..... Hamfest, NASHVILLE, TN.
- 29..... BRATS Maryland Hamfest, W.FRIENDSHIP, MD.
- 29*..... Jackson County Hamfest, RIPLEY, WVA.

AUGUST

- 4-5*..... Hamfest, JACKSONVILLE, FLA.
- 5..... SVARC Hamfest (Winchester), BERRYVILLE, VA.
- 18-19..... HUNTSVILLE, ALA.
- 26..... Hamfest, BLUEFIELD, WVA.
- 26*..... Hamfest, CEDARS OF LEBANON PARK, TN.
- 26*..... Confederate Signal Corps Hamfest, MADISON, GA.
- 26*..... Hamfest, MORGANTOWN, WVA.
- 25-26*..... Central Alabama Hamfest, MONTGOMERY, ALA.

SEPTEMBER

- 1..... Annual CVRA-SERA Meeting, SHELBY, N.C.
- 1-2..... Hamfest, SHELBY, N.C.
- 8-9*..... Central Ga. Hamfest, WARNER ROBBINS, GA.
- 8..... Tri-Cities Hamfest, GRAY, TN.
- 8-9*..... Swapfest & Picnic, CLEVELAND, TN.
- 9*..... Hamfest, GAITHERSBURG, MD.
- 15*..... WCARS II Swapfest, GREENWOOD, S.C.
- 16*..... Hamfest, CINCINNATI, OH.
- 16*..... Hamfest, AUGUSTA, GA.
- 23*..... Hamfest, GAINESVILLE, GA.
- 22-23..... Roanoke Div. ARRL Conv. VIRGINIA BEACH, VA.
- 29-30..... Ky. State ARRL Conv./Hamfest, LOUISVILLE, KY.

OCTOBER

- 7*..... Hamfest, ROCK HILL, S.C.
- 7*..... Hamfest, ROME, GA.
- 14*..... Hamfest, MAYESVILLE, N.C.
- 13-14*..... Hamfest, CLEARWATER, FLA.
- 13-14*..... Hamfest, MEMPHIS, TN.
- 27-28..... Hamfest, CHATTANOOGA, TN.

NOVEMBER

- 3-4*..... Hamfest, STONE MT., GA.
- 4*..... Hamfest, CONCORD, N.C.
- 24-25*..... Hamfest, GREENSBORO, N.C.
- *NOT CONFIRMED (Date is based on Last Years Information)

An Inexpensive, Sensitive Receiver Preamplifier For 420-450 MHZ

Technical

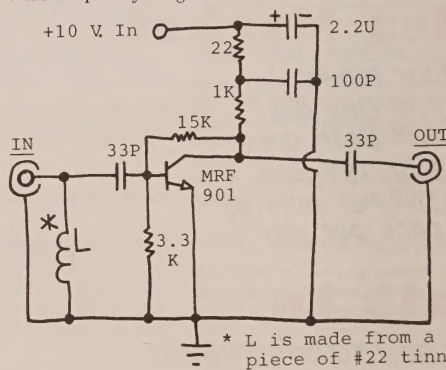
—By Herman Cone, WB4DBB
Technical Editor

This preamplifier, which can be built on a piece of solid copper clad board measuring only 1" by 1½", can add considerable sensitivity to most UHF receivers, and can be built for around three dollars. Although it has been designed for the UHF amateur band, it will still outperform many preamps on 220 Mhz, and even provide increased sensitivity to most 2 meter receivers. This bandwidth has many desirable characteristics, although preceding it with a low loss and selective filter is advised if it is used ahead of a receiver in a repeater.

This circuit requires 10 volts at about 5 milliamps of current, which can be easily provided in most applications. It uses the now widely available and inexpensive MRF-901 bipolar transistor, which comes in a 4 lead plastic package, and is very easy to work with. Input and output impedances are 50 ohms.

The preamp is built breadboard style, using very short leads. The 2 emitter leads of the MRF-901 are soldered right up to the body. 1/8 or 1/10 watt resistors are preferred, but 1/4 watt ones can be used, although they are not as easy to work with here. The electrolytic capacitor is a tantalum, and the other 3 are small ceramic discs with leads 1/10" long or less. Pay attention to the leads on the transistor. The collector is specially marked (by a dot or a lead longer than the others). The lead directly opposite the collector is the base, and the other 2 are emitter leads. Small connectors (B.N.C. types are preferred.) are installed as close as possible to the input and output.

This is a broadband circuit with no tuning adjustments, and although it has been optimized for best performance (2-2.5 DB noise figure) in the 450 Mhz amateur band, it is useable over a wide frequency range. See the chart below.



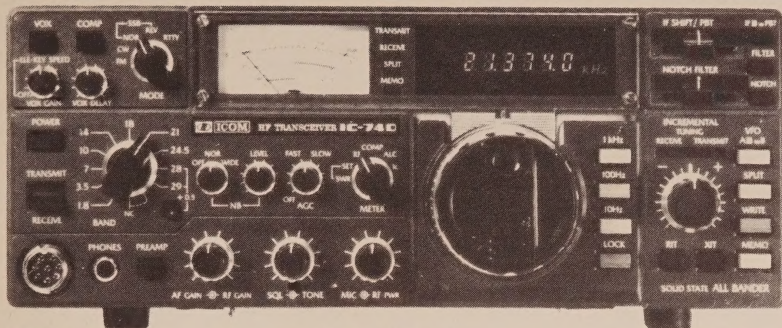
TYPICAL PERFORMANCE

FREQUENCY, MHZ	GAIN, DB	
200	12	
222	15	
250	17	
300	15	
400	15	
440	14	
460	13	
500	12	

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- EX 242 FM Unit
- EX 243 Electric Key Unit
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- EX 54 9 MHz Xtal Filter 270 Hz -6dB
- EX 52 455 KHz Xtal Filter 500 Hz -6dB
- EX 53 455 KHz Xtal Filter 250 Hz -6dB
- EX 44 455 KHz SSB Filter 2.4 KHz -6dB
- EX 238 Built-in type power supply

Accessories

- IC SM5 Desk Microphone
- IC HM10 Microphone with Up/Down Scan
- IC 2KL 500W Linear Amplifier
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- IC HP1 Headphones
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- Dual Antenna Inputs

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- EX257 FM Option
- EX261 Transceiver Unit (works with IC-720 or IC-720A)

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